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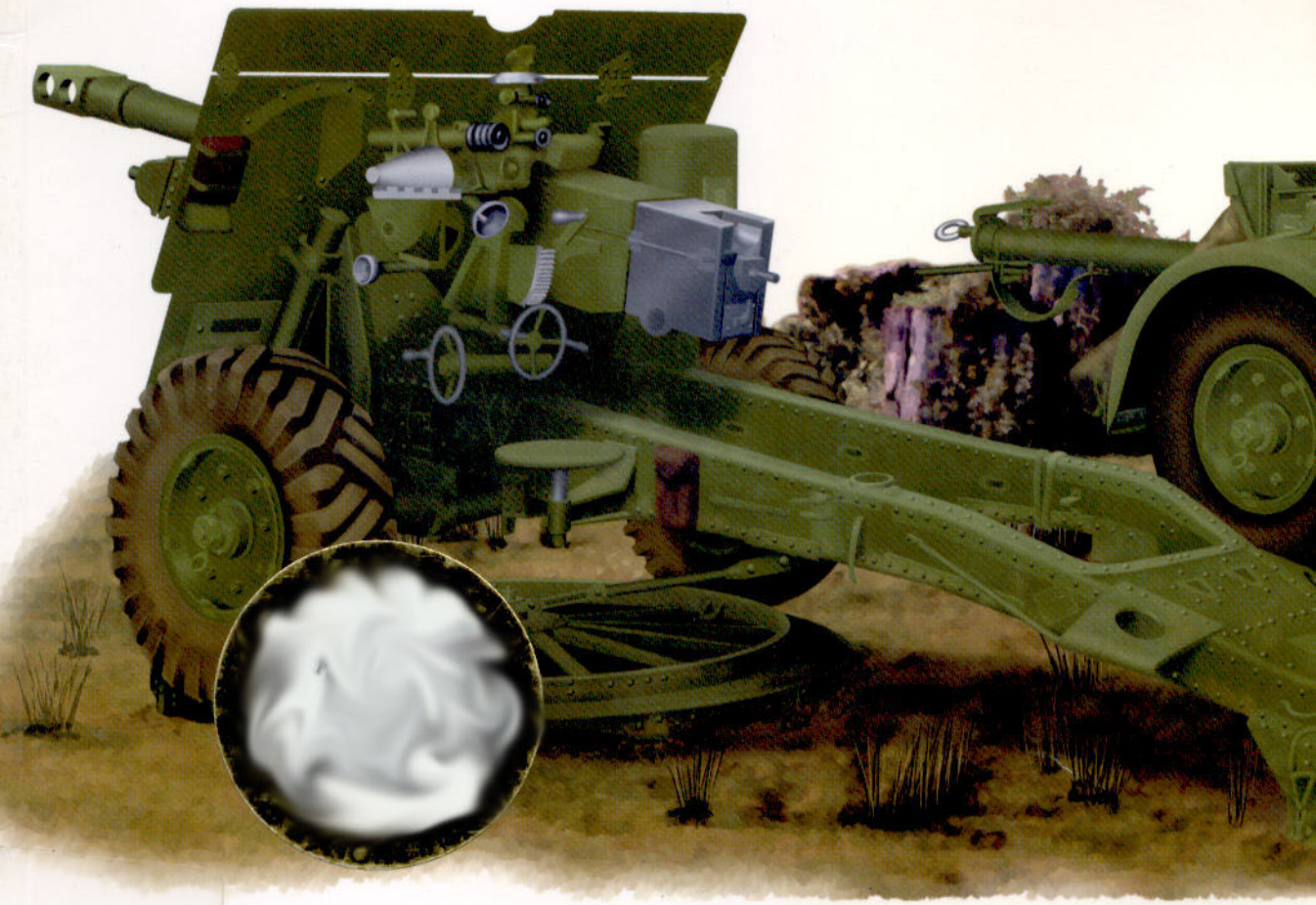
The 25-pounder Field Gun 1939–72



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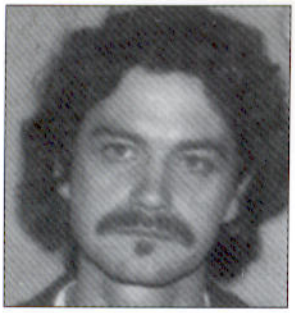

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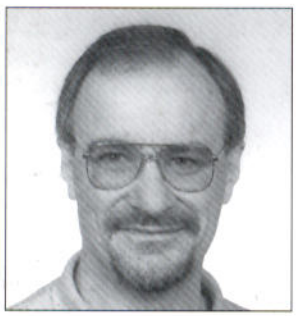

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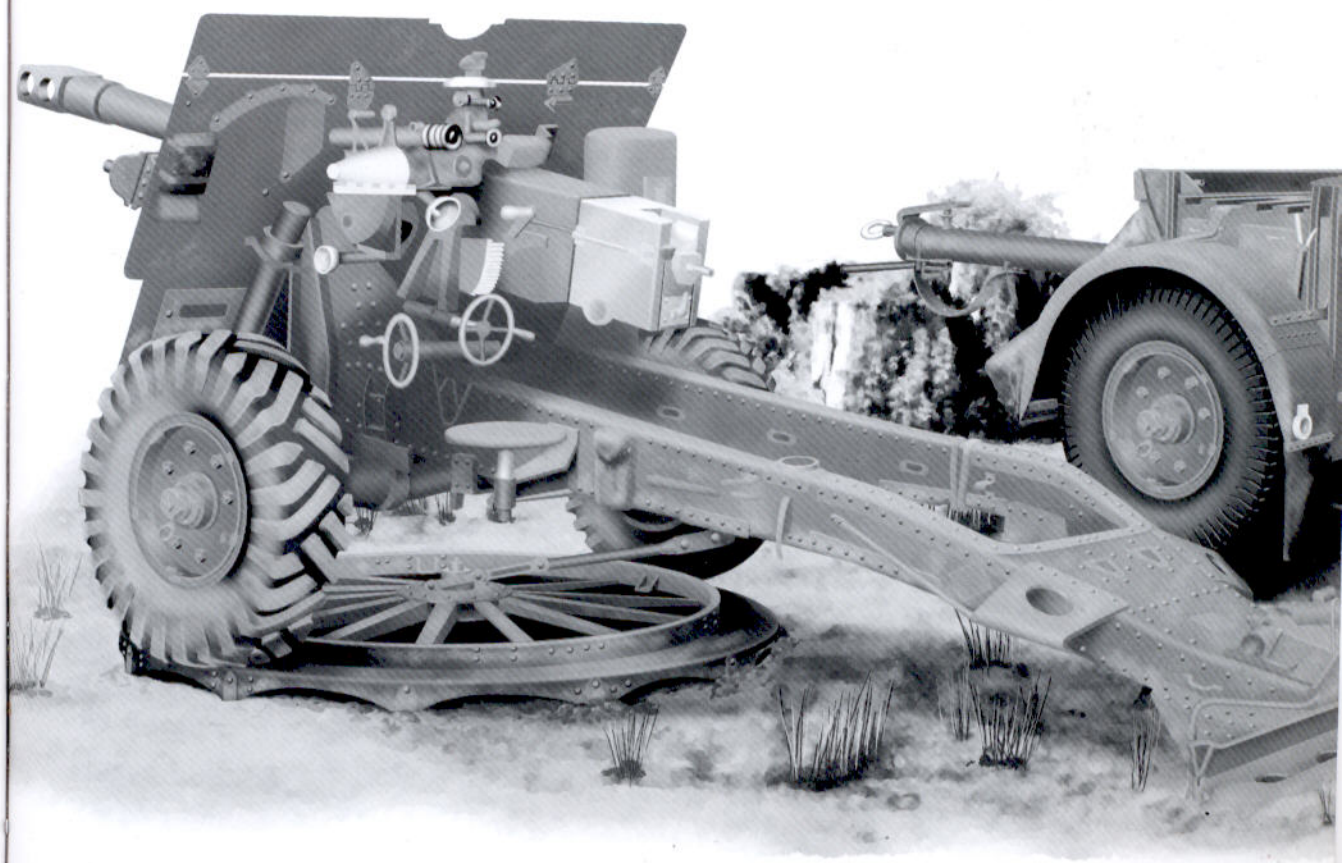

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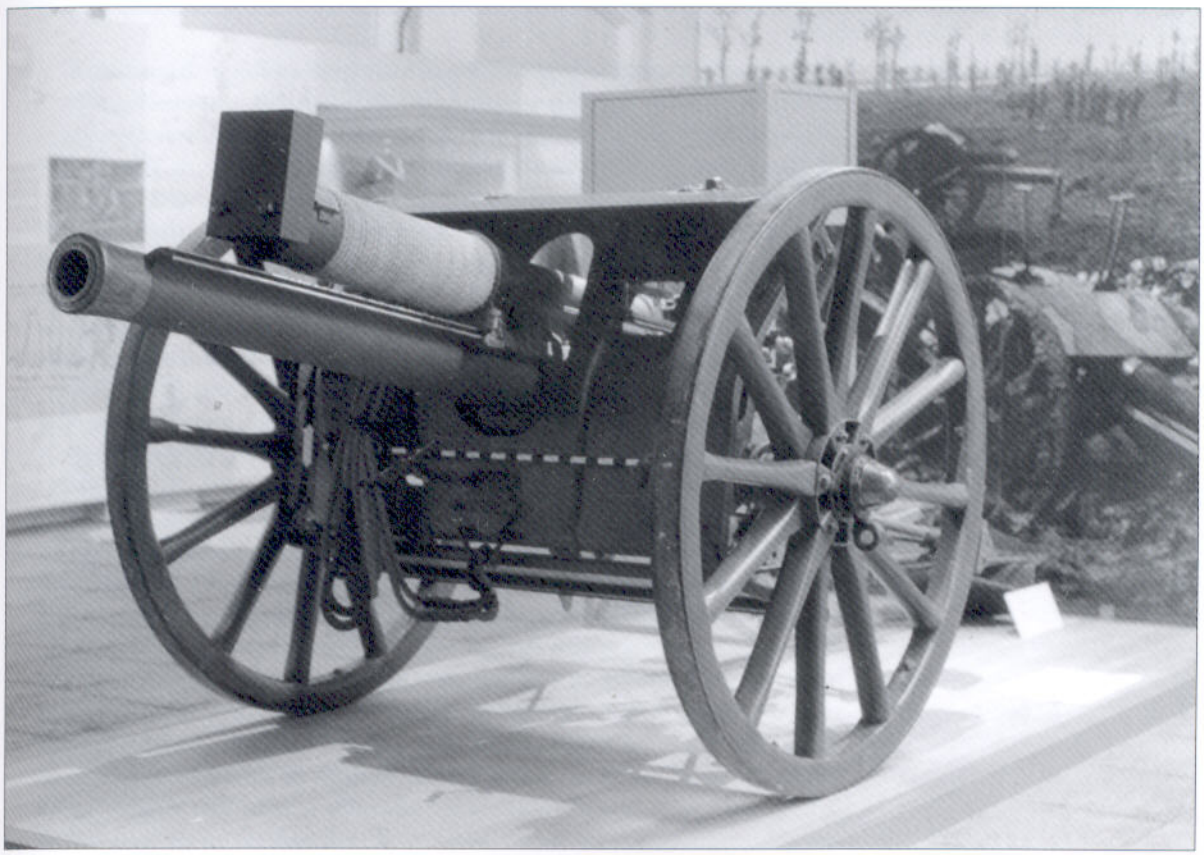
THE 25-POUNDER FIELD GUN 1939–72

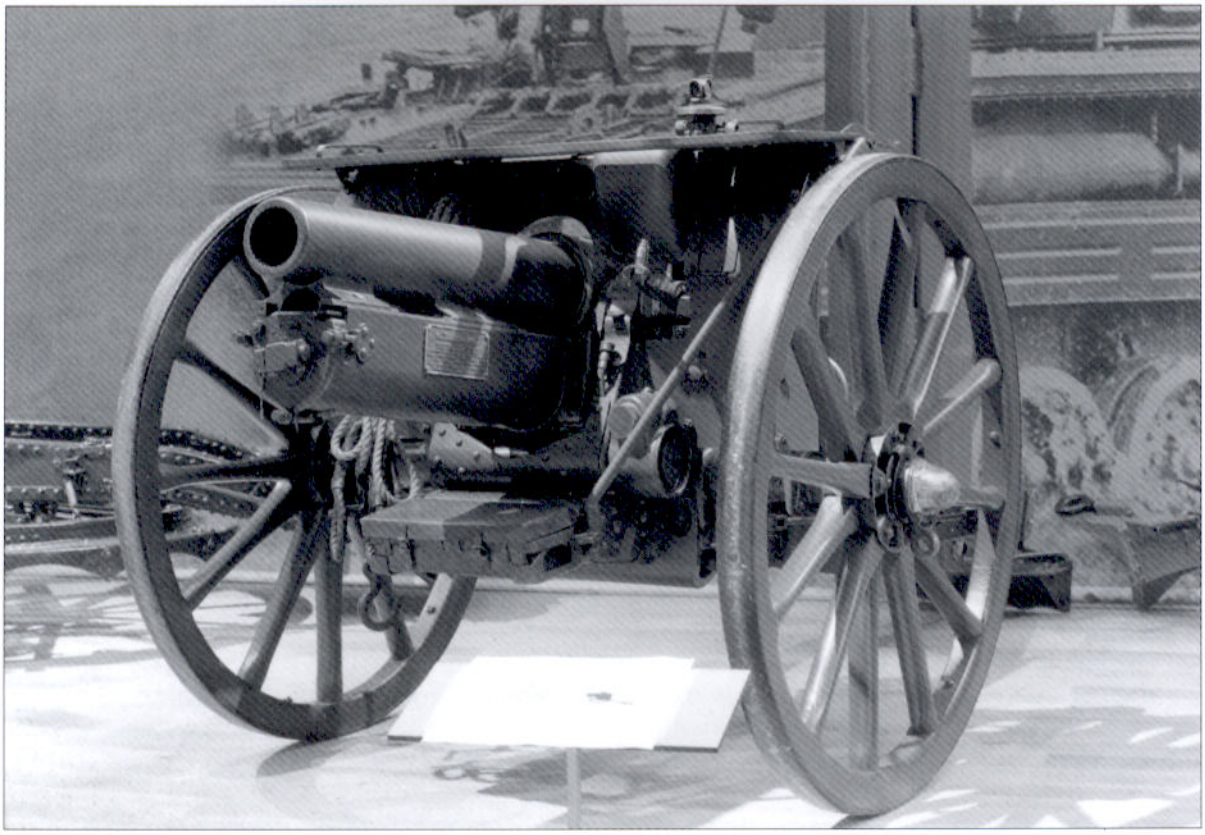
DEVELOPMENT

The last British force to operate a 25-pounder gun in action were two SAS troopers in the Omani port of Mirbat on 19 July 1972. Under the command of Captain Mike Kealy, the SAS and members of the Omani armed forces fought a running battle of several hours against a communist-influenced ethnic group known as the Adoo who were rebelling against the rule of the then-current Sultan. The 25-pounder was emplaced in a protected gunpit just outside a fort in the town. It was fired at point blank range and held off the attackers until the SAS relief force arrived to take control.

The gun itself is still in existence and is dated 1943. That it still gave good service some 29 years later attests to the sound design and robust nature of the gun. Few weapons could be said to have had such a long life, especially as modern armaments are superseded in a very short time



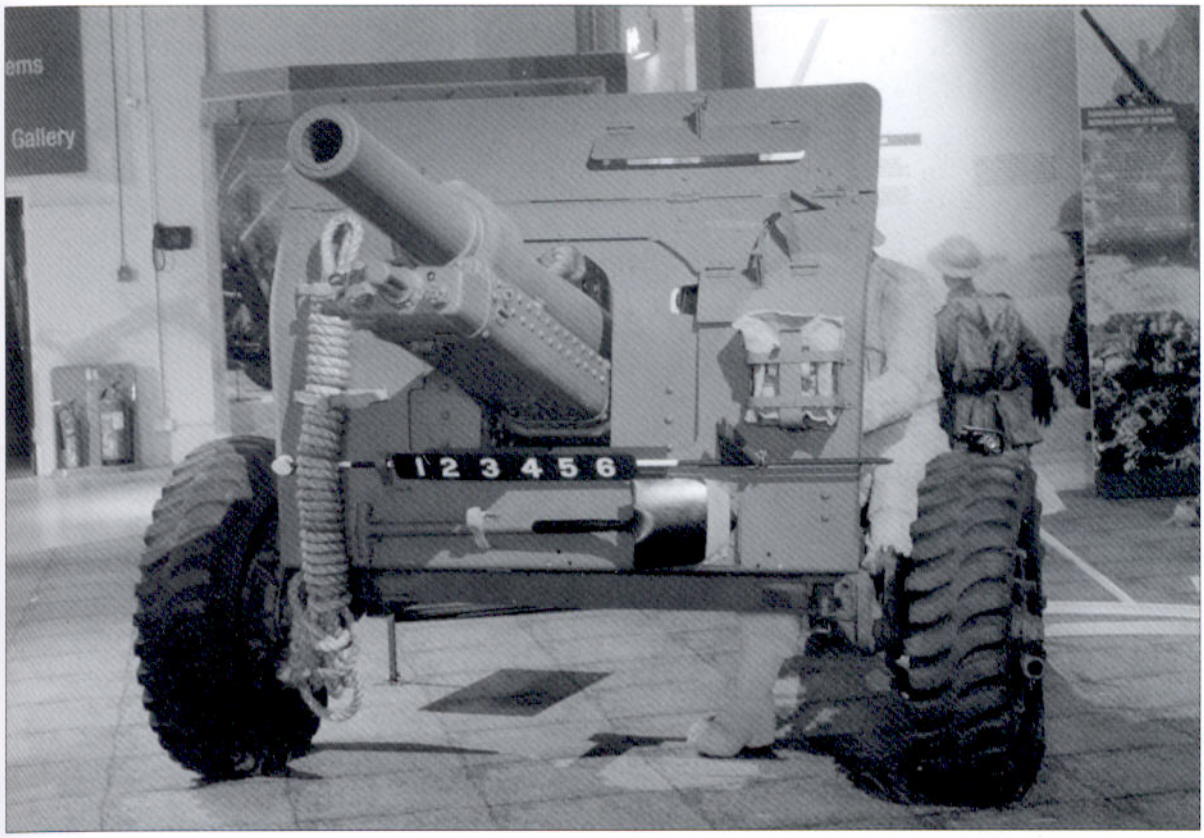
The classic 18-pounder field gun, this piece was the basis for the 25-pounder Mk. I but lacked the high trajectory required for the modern gun. (Courtesy of RAHT)



The 4.5-inch howitzer, used in conjunction with the 18-pounder field gun, was a robust, simple design with a box trail. This style of trail was eventually accepted for the 25-pounder Mk. II. (Courtesy of RAHT)

and rely on a massive logistics support system to keep them serviceable. The story of the development of this gun is really two stories. The first deals with the 25-pounder Mk. I, or the 18/25-pounder as it became known, and comes to a close with the withdrawal from Dunkirk. The second deals with the gun that became the most famous British gun of the Second World War, whose story continued into the 1970s. The intention of this book is to look at the main weapons in use by the British Army and therefore it will not concentrate on the experimental ideas that were envisaged during the development of the Mk. II gun.

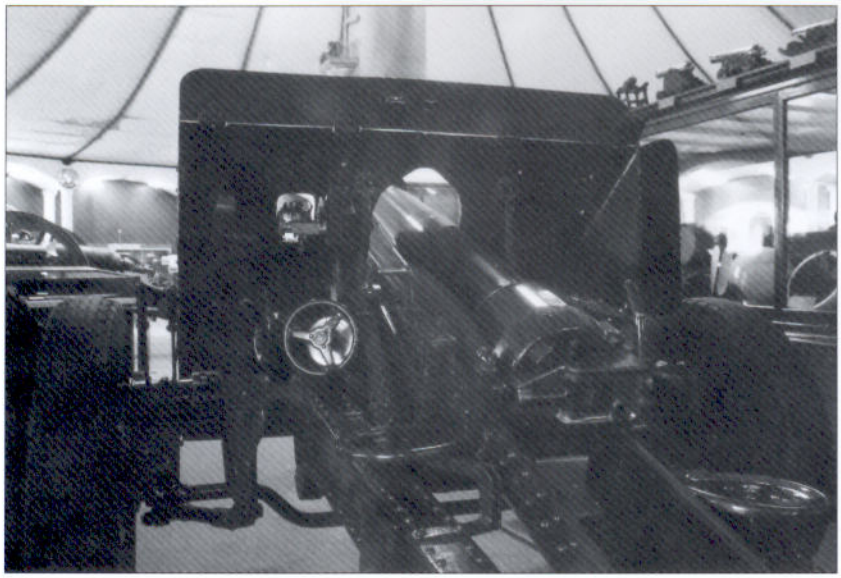
For veterans of the Western Desert and all the units of the Royal Regiment of Artillery who used it during the Second World War, the 25-pounder is an icon gun, the colours of the regiment. It can be said to have begun as a requirement for the British Army in 1919 when the War Office discussed the need for future armaments. As is the case with much new artillery equipment, an operational requirement was established and then designs were considered. This was often done in conjunction with the arms manufacturer, in this case Vickers Armstrong. Although many manufacturers were eventually to make the 25-pounder gun in its various guises, it was the designers at Vickers who were key to the gun's design and manufacture. The importance of the 25-pounder was that it was designed as a gun/howitzer. The combination of characteristics of the 18-pounder field gun of the First World War, with its limited elevation and high muzzle velocity, and the 4.5-inch howitzer with its high trajectory would make this the most versatile British artillery weapon of the Second World War.



The 25-pounder Mk. I on Mk. IVP carriage. This actual gun was not fitted with the 25-pounder rifled sleeve and was received from Jordan. (Courtesy of RAHT)

All artillery design is a trade-off. A projectile is normally designed to be a certain weight and to be fired a certain distance, and this affects the type of barrel and carriage needed. In the case of the 25-pounder, a stop-gap version and a completely new design were conceived virtually in tandem. This did not come about in a straightforward way because much less emphasis was placed on the development of new weapons technology following the frightful carnage of the First World War. The body involved in this process was the Royal Artillery Committee, the body responsible for analysing and testing new types of artillery equipment, in conjunction with the Director, Royal Artillery. By 1924, the Royal Artillery Committee was examining various options and a range of 15,000 yards was considered for the new equipment. The projectile was the starting point. Various calibres and weights of projectile were considered, notably 3.9-inch and 4.1-inch projectiles. The former would be fired from a quick-firing gun (the projectile and cartridge case were loaded fixed together) and the latter from a breech loading (BL) howitzer, in which the projectile and charge were loaded separately. The thinking of the time appears to have been that two guns were needed. It was calculated that the larger calibre gun should be able to attain an effective range of 13,000 yards with a 33 pound projectile. .

The requirement for a gun firing a projectile of 20 to 25 pounds weight arose in October 1933 and was planned as a 3.7-inch gun/howitzer. This was to replace the two previously mentioned guns. It was not until 1934 that a General Staff Specification was issued and models were ordered for test by the Director, Royal Artillery, Major-



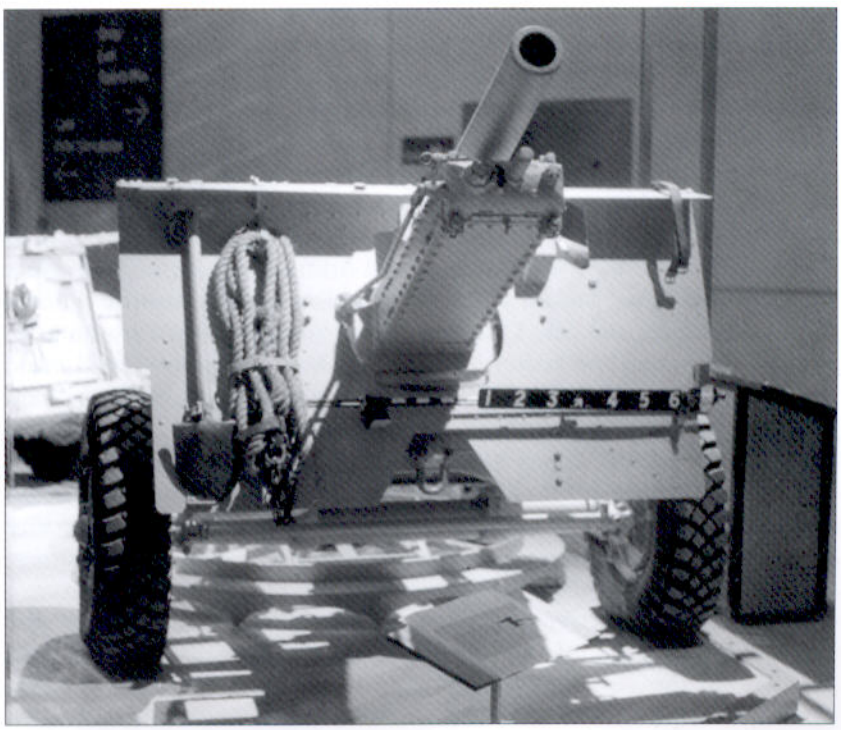
A rear view of the 25-pounder on Mk. VP split-trail carriage. Only a few of these guns entered service and most were lost in France during 1940. (Courtesy of RAHT)

General H. A. Lewis, who ordered construction of the first prototype model of the 25-pounder gun. As often happens, the authorities were forced to take a look at existing equipment and consider whether it could be utilised in some way. There were, at the time, many 18-pounder guns in store. Experiments were made with these older guns to see whether they could be adapted to accept the new 25-pounder projectile.

By 1935, a decision had been taken to refit the existing 18-pounder jackets with 25-pounder ones and adapt their carriages by fitting them with pneumatic road wheels to allow towing at higher speeds by a petrol-driven vehicle. This rebored gun was to be fitted with a larger bore rifled liner and became the first of the 25-pounder series, known as the Ordnance QF 25-pdr Mk. I. The relining of the gun barrel itself was possible because the 18-pounder barrel was made up of several parts; the rifled bore, known as the 'A' tube, could be removed and replaced with a new larger bore liner of about 87.5 mm calibre. This new tube was autofrettaged, that is subjected to internal hydraulic pressure so that the metal on the inner surface of the bore is stretched beyond its elastic limit, while the metal further away from the inner surface retains its elasticity, leaving the barrel in a state of compression and much stronger. This technique is still used in many gun barrels today. Nevertheless, the range of the gun was reduced by the use of the old 18-pounder carriages and only 11,800 yards could be achieved. The original range requirement therefore would never be possible, and further development on the carriage would be required to cope with the extra stress generated by the need for greater range. The carriage was a difficult problem since the older 18-pounder had a pole trail, that is a single pole that was intended to be attached to the limber but was fitted directly below the breech. This configuration affected the gun's characteristics. Later versions of the 18-pounder carriage were moving towards the kind of equipment that would eventually become the standard field gun. Two main versions were available: one with a split trail (the Mk. VP) and one with a box trail (the Mk. III/IVP). About 1,000 of the Mk. I design were converted and used.

Although both Vickers and Woolwich – in this case the Royal Carriage Department – produced a split-trail version of a new carriage design, neither was really considered acceptable by the gunners who were, after all, the ones who were to use the gun. Of the two main carriage designs produced by Vickers and the RCD at Woolwich, the Vickers split trail was considered in 1937. However, this was not to be the final word as the box trail conferred several advantages in the field. In a box-trail carriage the gun can be elevated to a high angle because the breech lies between the box sides. One has to go back to the 4.1-inch BL gun design of 1931 to see where the Mk. I 25-pounder carriage design came from. Vickers had completed an order of a box-trail design for the Spanish government in 1922 and the model 1922 105 mm gun was the basis for the 4.1-inch BL howitzer. The box trail was very similar to that used for the 18-pounder Mk. IV. It appears that Vickers produced the gun in 1931 for trials on Salisbury Plain, and examination of this piece clearly shows the humped box trail and firing platform in evidence. This carriage was fitted with the Mk. II barrel and was the beginning of the famous 25-pounder gun. In reality it was the insistence of gunners in the field, certainly during testing, that led to the adoption of a box-trail gun.

The 25-pounder as it is known today is a very different gun from the 18/25-pounder. It was in development as the Mk. II 25-pounder at about the same time as the 18-pounders were being converted to take the new ammunition. The Mk. II had a very different barrel from the Mk. I. Gunners were keen to see an artillery piece that could be traversed through 360 degrees married to the advantages of a box trail, and so the format of the famous 25-pounder took shape. The Royal Artillery Committee, in a memorandum dated 3 March 1926, specified the requirement for a circular platform. As has been seen, the 4.1-inch BL



The Mk. II 25-pounder on Mk. I carriage. This version has a barrel with a small muzzle extrusion at the end signifying that it was probably made in Canada. The shape made manufacture easier. (Courtesy of RAHT)

gun had this feature but there was also an extemporised version of the firing platform invented by Hogg and Paul and used in 1918. This platform was based upon a spare wheel and did the same job as the later all-steel invention. The platform, a steel disc with projections around its edge, was slung underneath the trail of the gun. When the gun came into action the platform was lowered and, because of a clever design, it could be pulled on to the platform by the tractor. Once in position, one man with a handspike could traverse the gun in any direction. This innovation not only saved a lot of effort but it also assisted the gun in the anti-tank role, as we shall see below. Generally, Vickers manufactured the gun in Britain but, because of the production requirements of the Second World War, the gun was eventually manufactured in Canada and Australia by private companies. The main manufacturing plant was at the Vickers works in Newcastle and at least 12,253 were built in Britain alone. From September 1939 to the end of 1940, Vickers supplied about two-thirds of Britain's artillery. The relining of the Mk. I gun was largely a Vickers affair, and its plants in Sheffield and Newcastle produced 25-pounders as did its Scottish subsidiaries. During the war, other smaller companies were involved in the manufacture of the gun and its spares, but it would not be possible to list them all here.

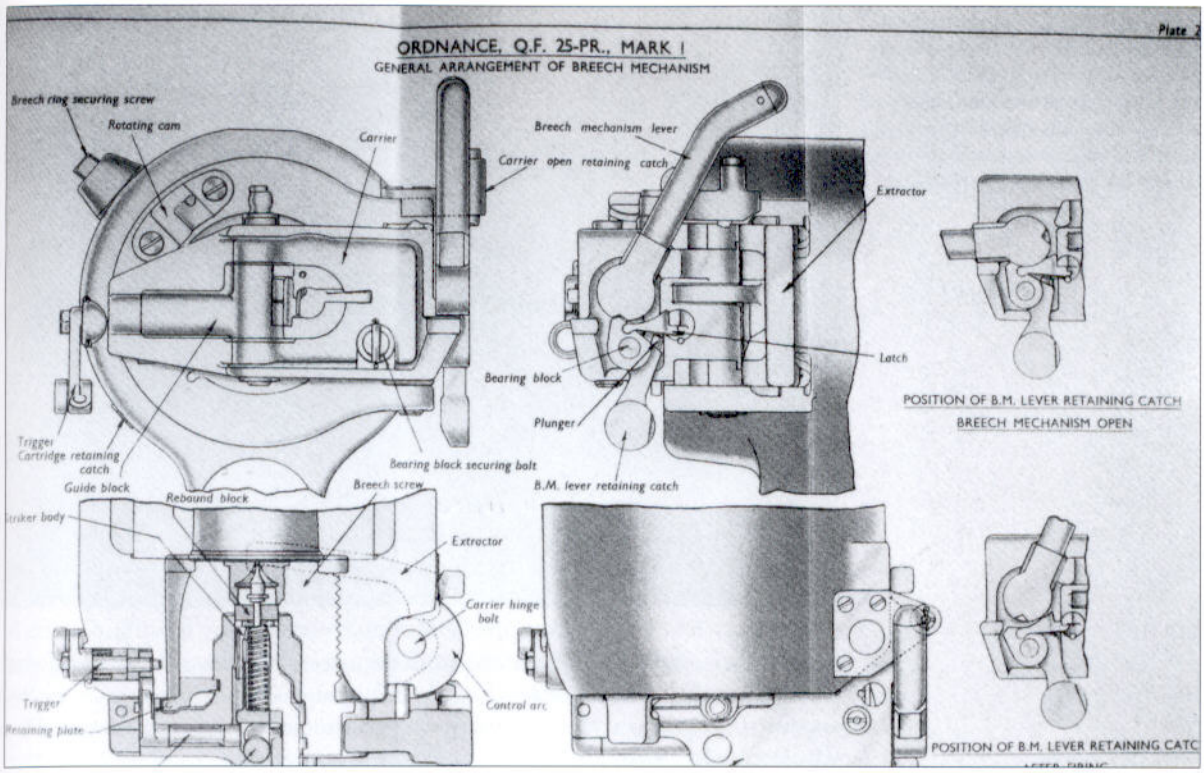
THE FEATURES OF THE 25-POUNDER GUN

It is worth considering the many different incarnations of the 25-pounder, but first a word of warning about the different marks of gun that were used. Military nomenclature is notoriously complex and it is worth noting that the 25-pounder Mk. I gun was completely different from the Mk. II. There were, in fact, three main versions of the barrel, three main versions of the carriage for the Mk. II barrel, two main versions of the carriage for the Mk. I barrel and many, many adaptations of the carriage.

The Mk. I Ordnance on Carriages Mk. IIITP, Mk. IVP and Mk. VP

The 25-pounder Mk. I was not designed from scratch and, although it was not a bad gun, lacked all of the excellent design features of the Mk. II. Generally, the Mk. I barrel was the all-steel Mk. IV 18-pounder barrel conversion. The barrel itself consisted of an autofrettaged loose liner, jacket, breech ring, oil reservoir and screwed collar. The breech was an interrupted screw breech operated from the right side of the gun viewed from the rear. It was a single-action breech known as the Asbury breech after its designer and the stepped, interrupted screw was known as the Welin pattern. The interrupted screw was necessary to ensure that the breech could be opened in one smooth motion. The brass cartridge ensured a gas-tight seal on firing.

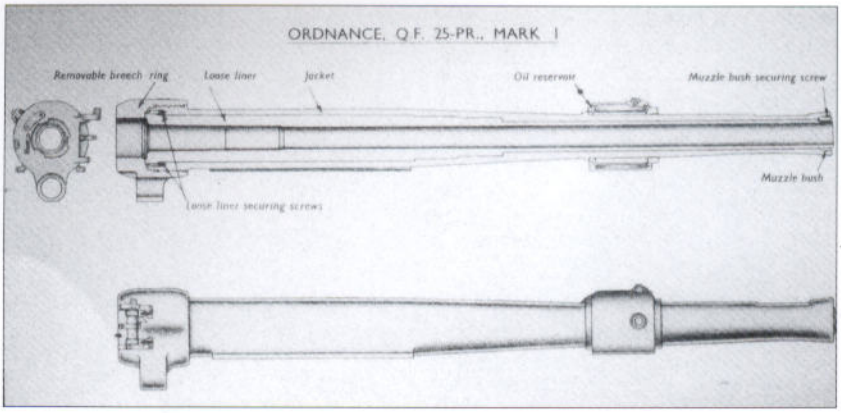
The principal carriages on which this ordnance was placed were the Mk. IIITP, Mk. IVP and the Mk. VP. The 'P' designation was used to denote that the carriage was mounted on pneumatic tyres. The two former carriages were very similar in construction whereas the latter was



of split-trail design. The Mk. IIITP and the Mk. IVP were box-trail designs consisting of the trail crossbar, suspension frame, brake-operating gear, cradle clamp, shield and traversing gear. The trail was manufactured in hollow box section and it was mounted on the suspension frame designed for mechanised transport. The crossbar was part of the axletree of the Mk. IV 18-pounder carriage before conversion; it had the axletree arms removed to accommodate a suspension frame. This frame consisted of a number of different components that enabled the trail and cradle to be insulated from the shock of travelling over the road at high speed. The traversing gear on these guns allowed for 4.5 degrees traverse right or left of the central position. It could be worked from either side of the carriage, that on the right hand side being a slow motion gear whilst that on the left could have slow or quick motion depending on the engagement of a clutch. The buffer recuperator that controlled the recoil of the gun worked as in the later Mk. II gun with a buffer for recoil and a hydropneumatic recuperator for returning the barrel to its original position.

The Mk. VP carriage had a split trail and extended traverse. Recoil control was the same as the Mk. IVP but the gun was able to fire at 15 degrees elevation with the trail legs closed or 37.5 degrees with the legs open. The maximum depression was 5 degrees. The main gain of this carriage was its ability to traverse 25 degrees left or right of the centre line, which was a big improvement on the Mk. IVP. Recoil length was 45 inches. The gun was fired from the left side via a mechanical linkage very similar to the other guns. The barrel, recoil control equipment and range indicator were much the same as the Mk. IV carriage but it was the axletree, trail legs and traversing gear that were

A cutaway diagram of the 25-pounder Mk. I breech showing the striker case and breech-operating lever. This breech was used on all versions of the Mk. I gun. (Author's photograph)

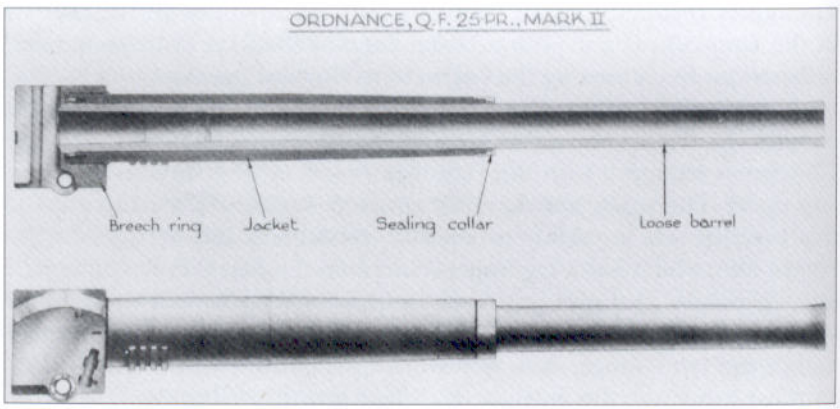


A sectioned view of the 25-pounder Mk. I barrel showing the loose liner and breech ring. The muzzle bush securing screw was fitted to make sure that there was no movement of the inner liner. (Author's photograph)

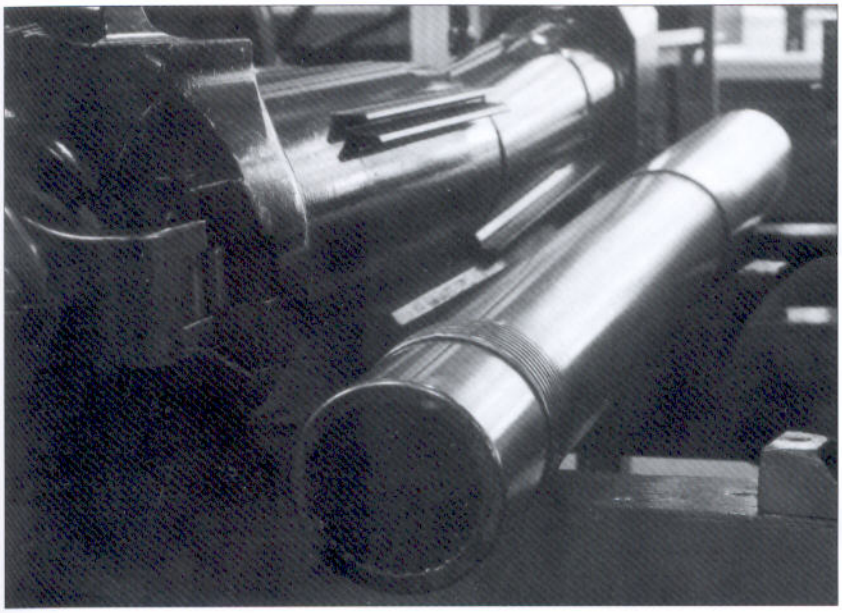
radically altered. The trail legs were connected to the axletree and crossbar and were made of steel. The axletree had two stub axles fitted to it and each trail leg had a metal ball bracket at the front. When the legs were thrown outward to deploy the gun, two stop brackets that connected by a hook to two eyes on the stub axle limited the extension of the legs. The gunners sat on the seat mounted on the top plate of each leg. The carriage body was made of manganese bronze and steel and was the traversing part of the carriage. It rested on the carriage body-supporting bracket that in turn was connected to the axletree. The whole shield, gun and carriage body arrangement traversed on the axletree. The shield itself was distinctive and was made of bulletproof steel. The upper part could be folded down whilst travelling but the whole construction was folded over at each side giving a very different appearance to the later Mk. II carriage. The rear of the shield had a bracket on the left for the case of a No.7 or No.7A dial sight. In action, the gun could be fired either with the legs open or closed, although in the latter case the gun had limited elevation.

The Mk. II Ordnance

The Mk. II can be described as a 'high velocity, comparatively long range weapon using propellant charges of different weights so that the relatively flat trajectory obtained with the higher charges can be altered into one with a steep angle of descent.' The carriage was designed to give 40 degrees of elevation and 5 degrees of depression with a traverse of



The 25-pounder Mk. II breech and barrel shown here are from a handbook of 1940. The counterweight, normally fitted next to the breech at the rear of the barrel, has not been illustrated. (Author's photograph)



The 25-pounder 'A' tube, showing the breech end. The muzzle end of the tube has a threaded section, which was meant to take the Solothorn muzzle brake. (Author's photograph)

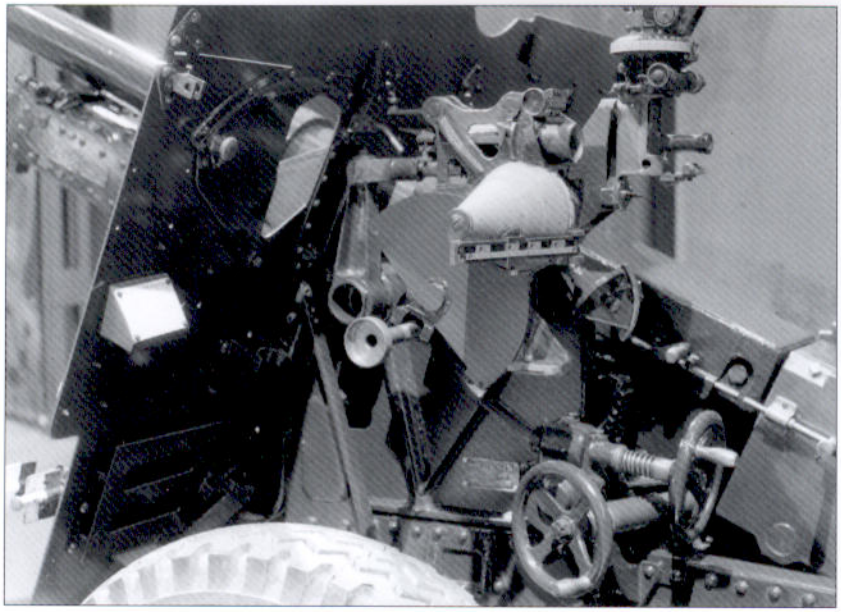
8 degrees. The gun barrel was mounted on a hydraulic buffer with a hydropneumatic recuperator, all of which worked within the cradle box moving with the gun barrel on firing.

The breech was a vertical sliding block with a mechanical firing lock. The variable charge system of the gun meant that the propellant charges were loaded by inserting separate bags into the metal cartridge case, and a primer inserted into the base of the case. Loading was carried out by placing the shell into the breech first and then the cartridge.

One of the most ingenious devices for making the 25-pounder so versatile was the firing platform. There were two versions: the larger No.9 and the No.22, the former being for the Mk. I carriage, the latter for the Mk. II and Mk. III carriages, which were narrower. The toe plates of the platform dug into the ground and the gun could be towed on to its platform in seconds where it would have 360-degree movement. This could also be carried out without the vehicle but with the No.27 trailer being used as a fulcrum, but it was a laborious process. When the gun was placed on the platform the trail spade was normally covered. This was to prevent the spade from digging into the ground when the gun needed to be traversed rapidly for anti-tank work.

The Probert scale or range scale reader acted like a mechanical computer and was named after its inventor, an artillery officer named Probert. The scale is often known as a range cone and combined a number of features. It expressed tangent elevation, that is the difference between the line of sight and the elevation, as range on the sights. The cone is engraved with a tangent elevation scale on its base reading between 0 and 45 degrees. Range scales graduated in hundreds of yards are also engraved on the cone. In addition, a muzzle velocity reader arm could be read off against the cone. The range scale cone made all of the adjustments between sighting elevation and charge much easier to set quickly on the gun.

The dial sight was the main indirect fire instrument of the gunner. It could be revolved between 0 and 360 degrees so that prominent features



A close-up of the Probert range drum and range quadrant cover on the Mirbat 25-pounder. This gun has been fitted with the No.1 Mk. I dial sight. (Courtesy of RAHT)

on the landscape could be viewed. The bearing between an aiming point and the target could be calculated and the gun offset from the aiming point by the same amount of degrees called down from the front by the observer through the command post. If this was set on the sight of the gun and the gun was traversed back to the aiming point, the gun would then be aiming at the target. There were several versions of dial sights, the most numerous being the No.7A, No.7C and No.9 types. For direct aiming the guns employed the No.29 or the No.41 sighting telescope. In addition to sights, the gun required a sight clinometer to indicate the angle of sight and often a field clinometer was used for elevation, the field clinometer Mk. 6 being used for this purpose.

Among the more curious instruments for sighting were the aiming posts. These were two metal rods painted in black and white sections with an adjustable numbered crossbar on the top. The aiming posts were intended to be used where there were no prominent features for an aiming point or visibility was bad. The dial sight could be focused on them. There were two types: the No.1 for the field gun and the No.3 for the self-propelled gun.

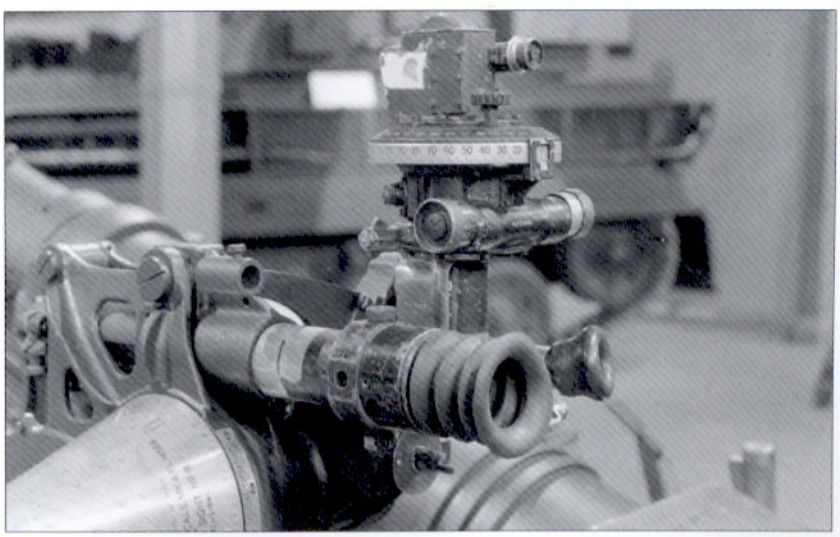
There were six versions of the gun barrel itself. The original was the Mk. I barrel with a loose liner. The Mk. II was the standard design and this was manufactured in Canada and known as the C Mk. II. It was used at about the same time as the standard Mk. II, during the early part of the war. It is distinguishable by the linear silhouette of the barrel showing a larger muzzle area. The Mk. III was introduced in 1944 and had the chamber altered so that when the gun was elevated the projectile did not slip back out of the chamber. The area known as the shot seating was altered to get this effect. Again, there was also a Canadian version of this mark denoted C Mk. III. The Mk. IV barrel was an attempt to stop the breech ring cracking when the gun fired, by slightly changing its shape. The Mk. VI barrel was the final alteration, made in 1964, in which the breech ring was made of better quality steel. Often one can see the transitions a 25-pounder gun barrel has undergone by looking at the

breech ring. Stamped numbers on the breech normally indicate what mark the gun is and whether it has been altered.

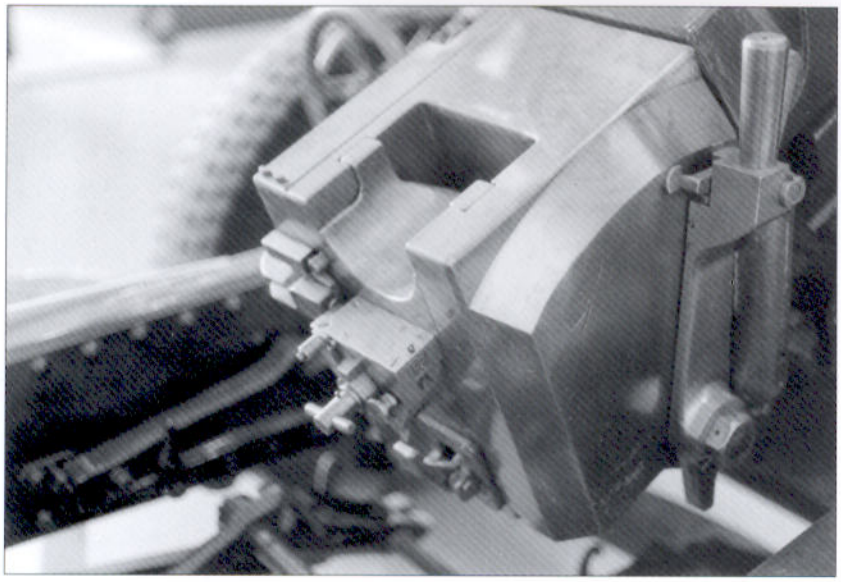
The breech ring itself changed significantly between the Mk. I and Mk. II examples, the Mk. II breech being entirely new. The breech-operating lever was to the right of the gun when facing the breech, whilst the gun was fired by a lever placed on the left side operated through a mechanical linkage. It was a vertical sliding block that completed two actions when the breechblock was lowered, that is it cocked the striker and ejected the fired cartridge case.

The gun barrel itself was mounted on a buffer/recuperator mechanism, the whole being contained in a cylinder block. The gun was mounted using two gun straps and the breech end of the barrel was fitted with thrust collars that connected to cotters on the recoil system. It is important to understand that the whole recoil block recoiled with the gun inside the cradle and the pistons within it were secured to the cradle front cap.

The buffer itself was hydraulic and the recuperator was hydropneumatic. The buffer, assisted by the recuperator, controlled recoil and the later stages of run-out. The recuperator assisted the buffer in absorbing the energy of recoil and controlling run-out, and returned the gun to the fully run-out position and maintained it there at all angles of elevation. In order to understand how this is done, one needs to look at the cylinder block itself, which had four cylinders: the buffer, the hydropneumatic cylinder, the liquid cylinder and the reservoir for the buffer. A piston runs up and down the buffer along four spiral grooves. When the gun fires, the piston rotates along the grooves and allows liquid to flow through a valve mounted on it so that, as the piston turns, it also reduces the amount of liquid flowing through to the other side of the chamber. This controls the level at which the gun recoils. In addition to this, the hydropneumatic recuperator had a floating piston that separated the air and liquid chambers. On firing, liquid was forced from the liquid cylinder into the hydropneumatic cylinder, compressing the air behind the piston and reducing recoil. Conversely, during run-out or when the gun begins to return to its normal position, the compressed air



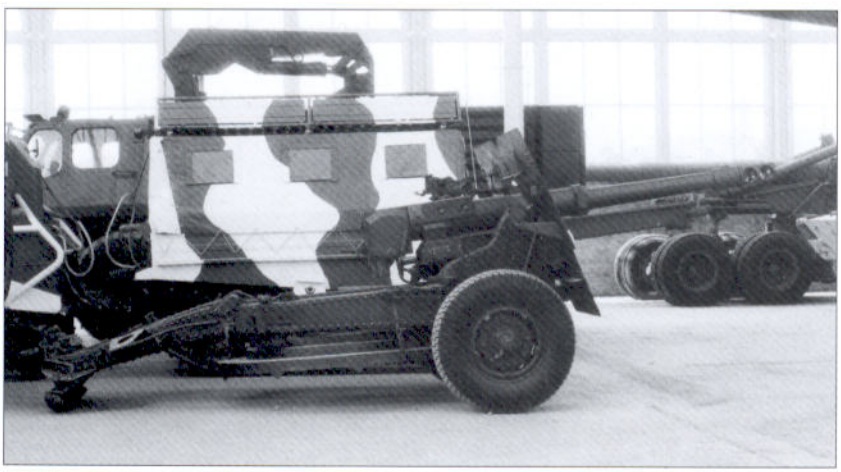
Sighting arrangements on the Australian 25-pounder, showing a No.9 dial sight and sighting telescope. (Courtesy of RAHT)



The breech mechanism of the Mk. II gun, complete with firing lock (striker case). This could be easily removed by pulling on the retaining catch, seen here to the right, and pulling it from the block. This in effect disabled the gun. (Courtesy of RAHT)

in the recuperator forces the floating piston forward and liquid is forced through the retarding valve. Effectively, the buffer works in the opposite way to recoil and allows smooth control on run-out. Anyone who has seen the 25-pounder firing will know how smooth this action is.

The three carriages in use with the Mk. II and later barrels were the Mk. I, Mk. II and Mk. III. As we have seen, the Mk. I carriage was of a humped box-trail design with a firing platform and front shield. The Mk. II was the narrower carriage design for the jungle, but the final main design change was the Mk. III carriage, which was a modification of the Mk. I carriage but used with the smaller No.22 firing platform. The trail sections of the rear quarter of the gun were jointed so that the gun could be elevated up to angles of 55 degrees. This was an improvement on earlier methods of elevation, which involved digging a gunpit for the trail. Brackets were repositioned on the gun trail to allow for the jointing mechanism. When operated, this allowed the forward part of the trail to rest on the ground whilst the rear part lay flat on it. Clearly, the platform was not used in the high-angle mode.



A Mk. III carriage fitted with a Mk. I shield. The platform is the No.22, which was of a smaller circumference. (Courtesy of RAHT)

Even with motor transport, this 25-pounder on Mk. III carriage is difficult to move on the muddy roads of Burma. The covers on the muzzle stop dirt from getting into the barrel and presumably there is one on the breech. Even the smallest grain of dirt in the breech mechanism could render the gun unserviceable and liable to be stripped down. (IWM)

AMMUNITION

It is often said that a gun is only a delivery device, the real weapon being the ammunition. The 25-pounder was provided with a very varied selection of ammunition, increasing its versatility. There were at least four main types of projectile: high-explosive, smoke, armour-piercing and carrier rounds used to deliver such things as propaganda, the latter being a field adaptation of the smoke round. As has been mentioned, the ammunition was separate loading, that is the projectile and cartridge were placed in the gun separately. The charge system consisted of propellant in a series of modular packages that could be combined by adding or removing them to get the required ballistic characteristic. The bags were placed inside a brass cartridge case that was fitted with a base primer. The cartridge case was slightly tapered and experiments went on throughout the war to replace the brass with a material that was more readily available. Generally, there was a normal charge consisting of three coloured bags of propellant and a supercharge, which was an additional bundle of propellant. The three charges were supposed to give ranges as follows:

Charge 1	(red)	3,566 m
Charge 2	(red and white)	7,132 m
Charge 3	(red, white and blue)	10,790 m
Supercharge		12,253 m

The fact that the ammunition was not loaded in a single package did not mean that the gun could not be fired rapidly. According to one source with the 4th Field Regiment, Royal Canadian Artillery, the fastest rate at which a gun was fired and timed was 17 rounds per minute. An incredible rate of fire, and probably not sustainable for long, but which demonstrates that separate loading was not a handicap when it came to firing rapidly. The Mk. I gun was provided with high-explosive, smoke BE (Base Ejection) and armour-piercing shot. In 1940, these were the HE Mk. 1D, the Mk. 1D BE smoke shell and the Mk. 1T armour-piercing

shot made of steel, which had an internal tracer. The main high-explosive shell remained the HE streamlined, Mk. ID, and was used in conjunction with a number of fuses. For example, the high-explosive projectile could be used with the 115E, 117, 117B, 119, 119B, 231, 232, 222, 213, T97E6 and the T97E9, all of which served different purposes. The high-explosive projectile was painted a buff colour to denote its contents. These shells were normally filled with Amatol but could also be filled with TNT or RDX. Other colours used were green for smoke and black for armour-piercing. There were also differently coloured bands around the head and body.

Head	
Red ring	indicated the shell was filled
Red crosses in a ring	filled shell suitable for hot climates
Black ring above red ring	fitted with exploders suitable for a powder-filled fuse
White ring	armour-piercing shot

Body	
Green band	Amatol or TNT filled
Two black bands	HE practice
One black band	empty shell for drill
Yellow band	practice projectile

The 25-pounder was also provided with an anti-tank round consisting of armour-piercing solid shot with a copper driving band. Smoke and propaganda shells were base-fused so that on detonating they would distribute their contents from the base. At El Alamein the number 210 fuse was available for air-burst use. This was considered to be particularly useful against German 88 mm gun crews. Casualties found after the battle were hidden at the bottom of a slit trench and could only have been caused by air-burst rounds. Many other types of projectile were experimented with and tested, but in general the high-explosive rounds and carrier rounds were most widely used.

The charge system was altered on a number of occasions, and to give more versatility the charges were eventually divided into seven different options.

TOOLS AND STORES

No artillery piece is complete without its compliment of tools and equipment, without which a gun can be rendered unserviceable very quickly. The 25-pounder Mk. II on Mk. I carriage was provided with a variety of tools to cope with most eventualities. The following is a list of tools provided for use with the gun:

Adaptors

Air pipe No.2

Pumps – There were two pumps provided with the 25-pounder and both were intended to recharge the recuperator when liquid or air was needed. A socket was provided on the trail section into which the pump was placed.

No.1 pump
No.14 Illuminating apparatus for an aiming point – This item was for firing at night, as the gun needed a reference point to locate bearing, sometimes known as the GAP or Gun Aiming Point.
Sights No.5
No.7 gun pull-back
Quick release attachment No.3
Boxes, charging pumps
Spade platform No.2
Cap sponge No.6
Cleaner Piasaba No.18
Cleaner Wool No.1
Field Clinometer
Covers – breech, muzzle, sight and overall (sometimes known as an elephant cover and used to cover the gun in transit)
Ejector projectile – One very important tool for the gunner was the projectile ejectors. The ejector Mk. I and Mk. II were designed to force a projectile back down towards the breech if it was stuck in the chamber for any reason. The head of the ejector was so designed that it would not exert undue pressure on the fuse when being applied from the muzzle end.
Pressure gauges
Striker protrusion No.16
Handspike 25-pounder
Cartridge holder 25-pounder QF
Keys – all normally used with ammunition
No.34 for the cartridge primer
No.119 for inserting and removing fuses
No.120 for setting fuses
No.121 for inserting or removing 2-inch percussion fuses
No.139 for setting the No.210 time fuse
Fuse indicator No.20
2.5-ton lifting jack
Pulling jack No.2

A 25-pounder firing in support of armoured divisions in Normandy, 1944. It is at full recoil and must just have been fired. The shield is up, so the gun aiming point must be to the rear of the piece. (IWM)

A 25-pounder Mk. II of the 14th Army in Burma in 1944. The crew has attached drag ropes to the wheels and is attempting to move the gun. The ropes would normally be attached to the front of the shield. (Courtesy of RAHT)

Key muzzle velocity corrector scale reader
Removing jammed QF cartridge No.1
Cocking lanyard No.7
Pipe, charging No.2
Plane testing dial sight carrier No.7 or No.7C dial sight
Platform No.9
Posts, aiming crosshead No.1
Rammer QF 25-pdr
Reservoir compressed air 5.5-inch diameter
Stop running back – This was a metal bracket that was fitted to the rear of the barrel breech assembly to stop it from sliding back off the cradle.
Telescope sighting No.29
Spanners and special implements

In addition to all of this equipment, the gun had such things as spades and drag ropes normally fastened to the front of the shield and held in the front stores tray of the No.27 ammunition trailer. Further additions were axes, oil cans, hacksaws and a drift.

ORGANISATION

In 1939, Royal Artillery Field Regiments were the ones who were to receive the 25-pounder Mk. I. A regiment was formed of two 12-gun batteries, each of three 4-gun troops. There were three regiments to a division, so theoretically a division should consist of 72 25-pounders.

The Detachment

In the Royal Artillery, the crew of the gun is known as the detachment. This goes back to the early days of the regiment when gunners were

formed into companies and then were detached to their various guns. There were six men in a 25-pounder detachment and they were numbered from one to six as below.

No.1 the commander, made large traverses of the gun and was normally positioned to the rear.

No.2 held the rammer and operated the breech lever. He stood to the right of the gun when viewed from the rear.

No.3 known as the layer, he sat on the wooden seat at the left of the gun and adjusted the sights. He also signalled adjustments to the No.1 during large traverses and fired the gun.

No.4 was the loader and placed the projectile and charge into the breech.

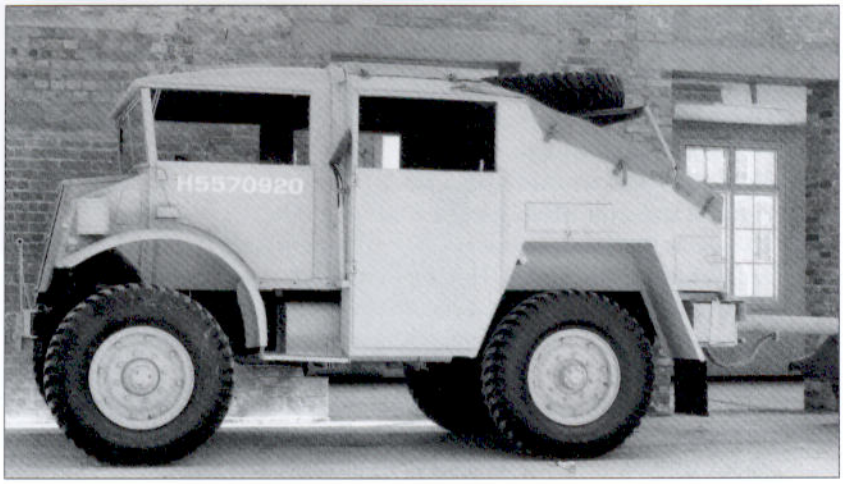
No.5 passed ammunition to No.4 and checked the fuse settings.

No.6 the second in command, set the fuses and the charges. He was also responsible for the braking and movement of the trailer.

FIELD ARTILLERY TRACTORS

Although main thrust of this work is the gun itself, it is sensible to say something of the towing vehicles used with the 25-pounder. Initially, the 25-pounder Mk. I was towed by the Dragon series of artillery tractors manufactured by Vickers Armstrong, and photographic evidence shows that some were sent to France with the BEF to tow the Mk. I gun. These vehicles were probably the Light Dragon Mk. IID. They were considered to be robust and reliable and were developed for use by the Royal Artillery in the early 1930s. Another vehicle that was utilised for towing the 25-pounder was the CDSW 6x4 field artillery tractor, which was manufactured by Morris in 1936. However, four-wheeled vehicles were considered and in 1937 a specification was issued for a four-wheel-drive artillery tractor. There were three main companies involved: Commer, Guy and Morris Commercial. The Quad, as it became known, was the distinctive Morris C8 /FWD Field Artillery Tractor or FAT for short. This vehicle went through three marks and a redesign of bodywork during the Second World War but was the most widely used form of tractor. The Mk. I had an enclosed body, the Mk. II had an open top. Guy Quad Ants were sold to the British Army but most of them were lost during the battle for

Field artillery tractors of D troop, 42/53 Field Battery, photographed in September 1940 near Sutton on Sea. The troop were re-equipped after Dunkirk and this photo shows early morning MT inspection. (Courtesy of RAHT)

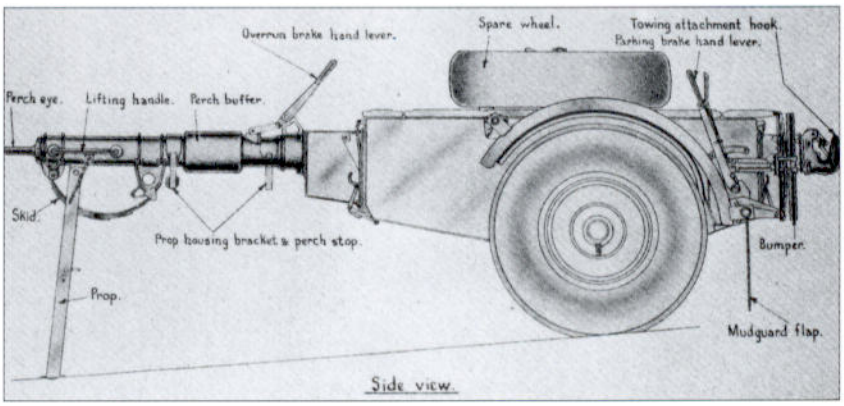


The Canadian FG-T Field Artillery Tractor, the most widely used 4x4 tractor of the Second World War. (Author's photograph)

France. Canada Ford and Canada General Motors also produced a FAT of the Canadian Military Pattern that was widely used with the 25-pounder Mks. II and III and over 22,000 vehicles of this type were manufactured. The main tractor, the Morris C8, was initially provided as a vehicle with an all-metal roof but this was replaced by a roll-up canvas one shortly afterwards. This was spread over metal bars welded across the top of the vehicle. The curious shape of the roof, with a sloping rear, was thought to allow the vehicle to be chemically decontaminated in the event of a gas attack. The Morris had a forward hatch in the front compartment through which the commander could get out. The interior was fitted out for six men and included stowage for ammunition and tools, although the main ammunition stowage was in the ammunition trailers. India also produced a Quad called the Karrier, which was the largest version of this vehicle.

AMMUNITION TRAILERS

Any photograph of the 25-pounder on the move shows the gun linked to a small trailer that in turn was hooked up to the Quad or tractor. The trailer was also known as the limber and was a vital piece of equipment not only because it carried the ammunition but also because it held



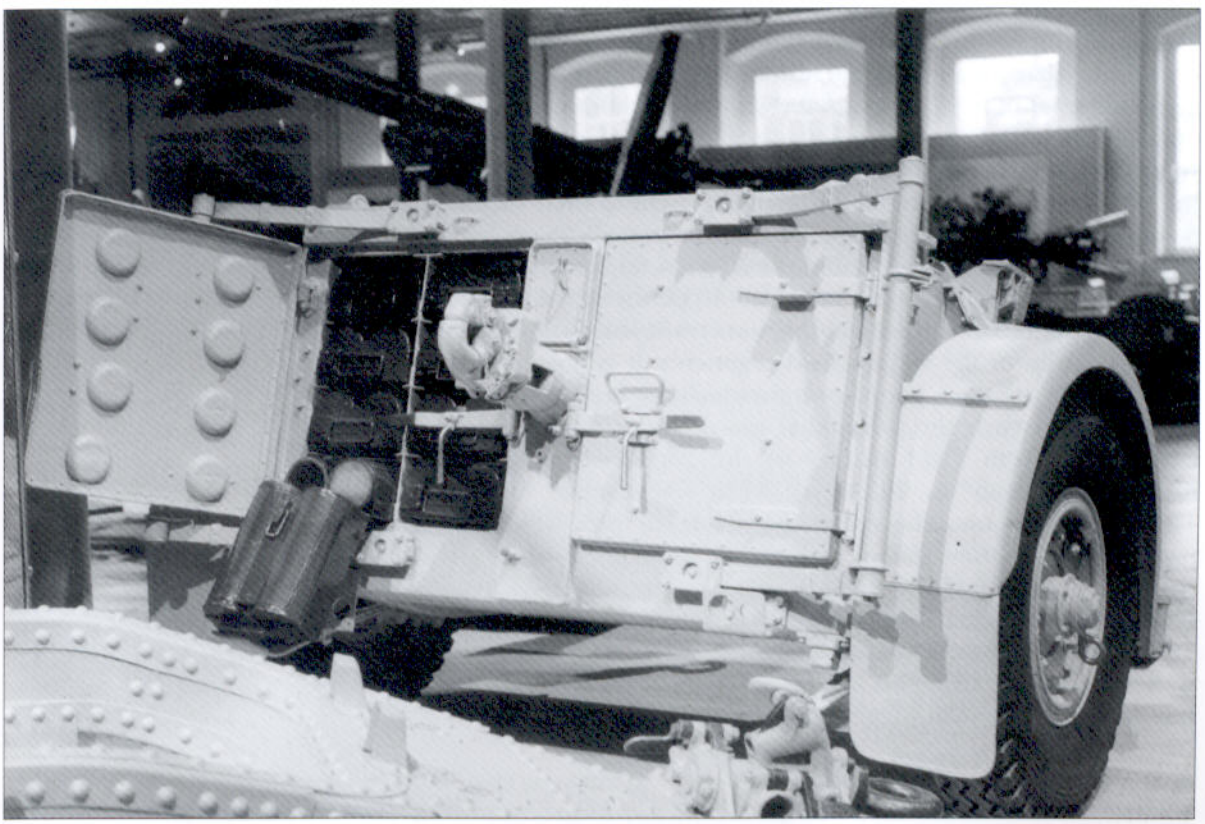
A contemporary drawing of the early No.24 ammunition trailer, taken from the 25-pounder Mk. I handbook of 1940. (Author's photograph)

many stores. There were in fact two types of ammunition trailer – the No.24 and the No.27. The No.24 was a pre-war development, which was quickly replaced by the famous No.27 shortly before the war began. Ammunition trailers could be linked and acted as the ammunition trailers of a gun section; they were referred to as ammunition trailers front and rear. The two trailers were towed behind the Quad and supplied ammunition to the gun in action.

The No.24 ammunition trailer consisted of an ammunition box, axle tube, perch and towing arrangement and brake-operating gear. It was designed to carry 32 rounds of ammunition, as was the No.27, but it was lower in height and had no provision for carrying the traversing platform, and only a wooden box on its top allowed for the carriage of tools and stores. Ammunition was stored in No.5 ammunition trays, which were made of galvanised sheet steel with wood felt and steel linings.

The No.27 ammunition trailer was an improvement on the No.24 because it had more space for tools and spares and could carry the firing platform on top. A steel stores tray was fitted on the front of the ammunition box, giving more flexibility. The trailer had similar ammunition trays to the No.24, which were open. The No.27 trailer had a later design with altered trays that completely encompassed the projectile and propellant, hinging in the middle so that either object could be removed. Some veterans of the desert war have commented that the reflectors on the vehicle and trailer were often smashed so that they would not reflect the sun, which allowed them to be easily detected by enemy ground-attack aircraft. The front tray normally held axes,

The No.27 ammunition trailer with later projectile and charge holders. The earlier models of the trailer had a simple, flat tray to hold the projectile. The projections on the open door are meant to hold the trays firmly in place when closed. (Courtesy of RAHT)



crowbars, the projectile ejector, handspikes, a jack, a spade, two drag ropes and the illuminated aiming point with its post spring and cover.

59 Battery, 18th Field Brigade, at Bulford in 1938. The guns are the 18/25-pounder on Mk. VP carriage with the Morris CDSW towing vehicle and No.24 ammunition trailer, which was obsolete before the beginning of the Second World War. (Courtesy of RAHT)

OPERATIONAL HISTORY

The Second World War

The Guns with the British Expeditionary Force in France

The arrival of the British Expeditionary Force in France in 1940 and its subsequent evacuation from Dunkirk is a well-documented story. Many different types of artillery equipment were sent to France but, typically, older equipment was issued, such as the 18-pounder with its accompanying 4.5-inch howitzers (admittedly on pneumatic wheels). It is also true that some divisional artillery regiments contained both the 18-pounder and the 18/25-pounder. Various methods of transport were available, including the earlier tractors such as the Light Dragon Mk. II. In all, 704 18/25-pounders were lost in France and the Germans took full advantage of this windfall by adapting them to their own use. The 5-pounders in German service became known as the 8.76 cm feldkanone 281(e) for the Mk. IV version and the 8.76 cm feldkanone 282 (e) with the Mk. VP carriage. During 1938 and 1939, the Royal Artillery went through a period of rearmament that was erratic and partial. If one reads the war diaries of the various field regiments, it is possible to get the flavour of the so-called 'phoney war' in which the British Army remained in limbo as regards the threat that was accumulating in Europe. For example, 50/70th Field Battery of the 24th Field Regiment went to Tilshead Camp on 20 August 1938 for practice with the new 18/25-pounder gun. The comments made by officers present were favourable and they stated that the 25-pounder smoke shell was particularly good. On 1 November, all 18-pounders and 4.5-inch howitzers were returned to Ordnance and the Battery received eight 18/25-pounder guns. It may not have been apparent just how quickly these guns and detachments were about to be thrown into action against the advancing German juggernaut. Five months later the guns would stand their first real test.

On 15 May 1940, the Battery crossed the Belgian border and by 16 May, it was in action supporting 145 Infantry Brigade covering the

forest of Soignies. The next few days were ones of intense activity in which the guns were in action time and time again. Typical of actions all along the front were those of A, B and C Troops:

'In action at Wormhout, O.P. [observation post] Gendarmerie (Rowlandson) engaged a considerable number of enemy infantry and tanks. O.P. almost surrounded and finally abandoned when line was broken. Robinson with HQ 6 Gloucesters at Ledrinhem. Battalion surrounded Robinson and O.P. party (Warne, Wright & Hawkins) fought their way out with Gloucesters in street fighting. Wormhout was heavily bombed and M.G. at 1200hrs. B trp withdrew at 1700hrs – C trp & A Troop at about 1830 hours. Terrific torrential rainstorm. Bty withdrew to R.V. about 2 miles N of Bambecque. Dickson ran into some Germans with A/Tk Guns at Rietveld at about 1300 hrs.'

The next day the guns were in action all day fighting running battles with German tanks. At 0100 hours an observation post was established in Bambecque church and an armoured OP (presumably a universal carrier) south-west of the village of West Cappel. German tanks actually entered the town at 1700 hours but the troops remained in action until 2100 hours, the last troop, C Troop, disengaged at midnight.

On 30 May, all the guns were sunk in the canal between Hondshoote and Bray Dunes. It is not known how this was achieved but normally this would involve removing the firing lock by taking out the striker, guide block and firing lever as a unit and dumping the guns in the canal. The Battery embarked for Britain on 31 May without their guns. It would seem that the guns had provided good service during the campaign and had been used in direct and indirect fire roles. However, all this had proved to be too much for the British Expeditionary Force and it was clear that for the 18/25-pounder this was to be its first and last great deployment. Approximately 334 guns were returned to Britain, of which many were 18/25-pounders, but they were never to be employed on such a large scale again, as the 25-pounder Mk. II became available from April 1940.

The 25-pounder Mk. II in Action

The first Mk. II 25-pounder guns were available in April 1940 and were issued to some field regiments of the Canadian Army at that time. It would seem that the first battery of British gunners to use the

Mk. II 25-pounder in a Normandy field. The normal procedure was to dig the gun in to a gunpit on a permanent position as soon as possible. The way the gun is deployed suggests that it has been rushed into action. (IWM)

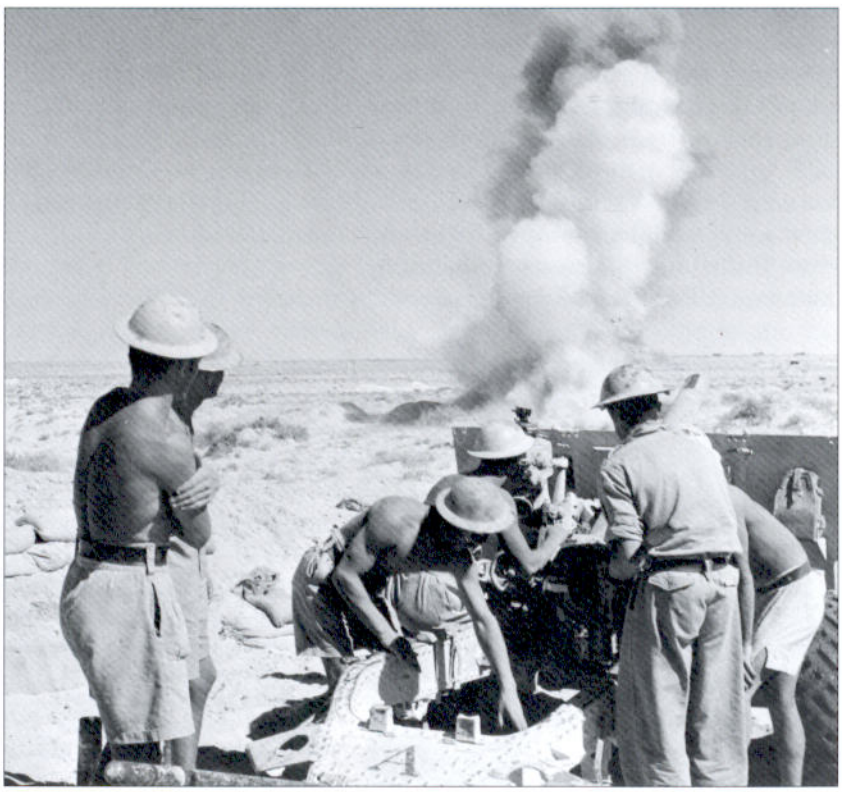
25-pounder Mk. II in action were those of 203 Battery of the 51st Field Regiment TA during the Norwegian campaign. They fought against German forces in April and early May and were involved in actions at Harstad, Mosjoen, Namsos and Haakvik. After the action at Harstad, the new guns were eventually abandoned on 31 May – a false start for a gun that was later to be such a mainstay for British forces.

Battles in the Western Desert during 1941–42

'My view of the 25-pounder is that it was simply a superb gun ... Manoeuvrable, it could be moved with a tractor and a fine detachment almost anywhere.' (Major Mathews, Independent Light Battery, 78th Division, Tunisia)

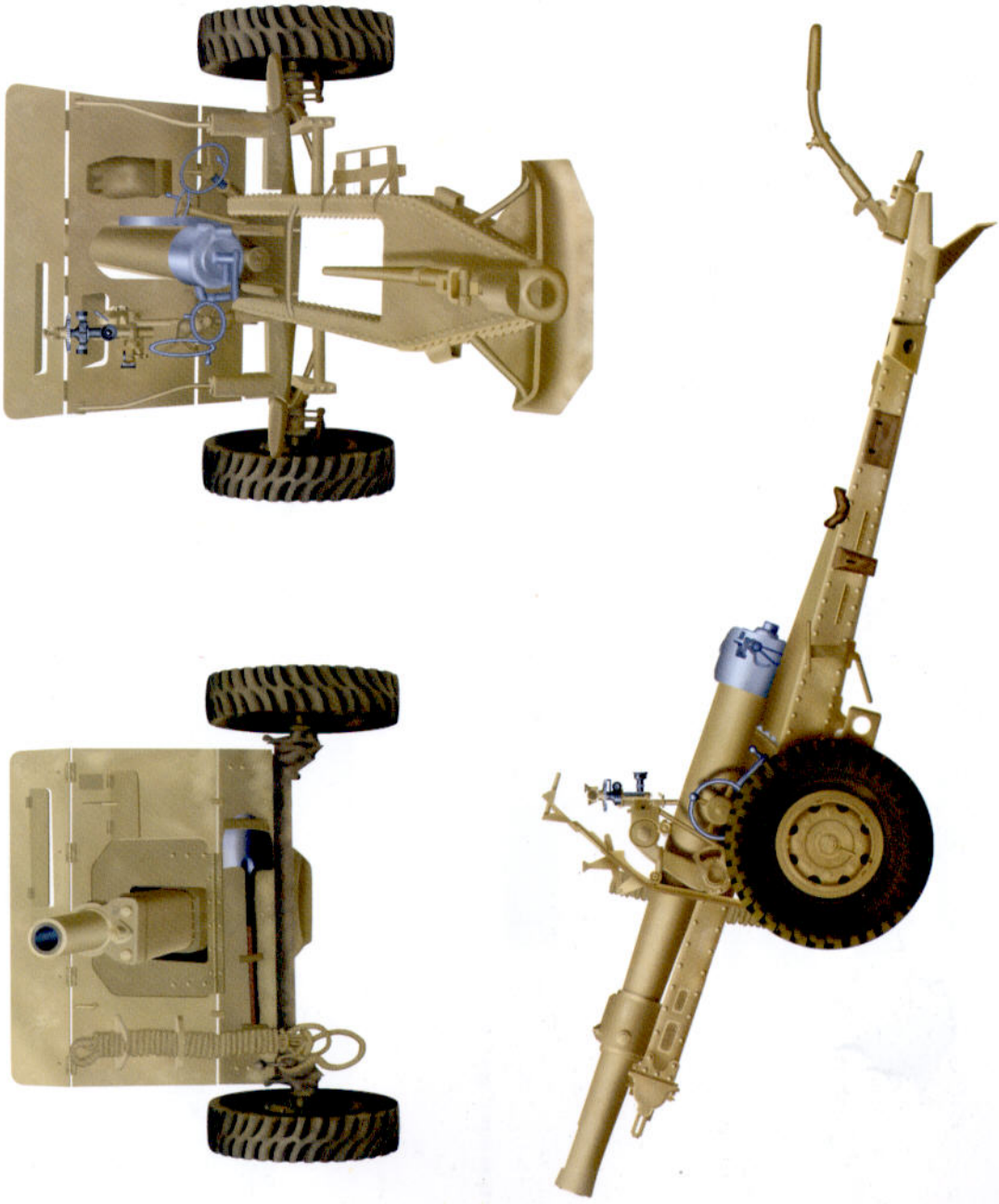
The see-saw battles that raged across the deserts of North Africa between 1940 and 1942, against first the Italians and later the Germans, saw what could arguably be viewed as the finest hour of the 25-pounder. War in the desert was very different from that experienced in Western Europe. The opposing armies had to know precisely how much fuel, water and ammunition they would need. This led to some difficult decisions about how to deploy armour and artillery.

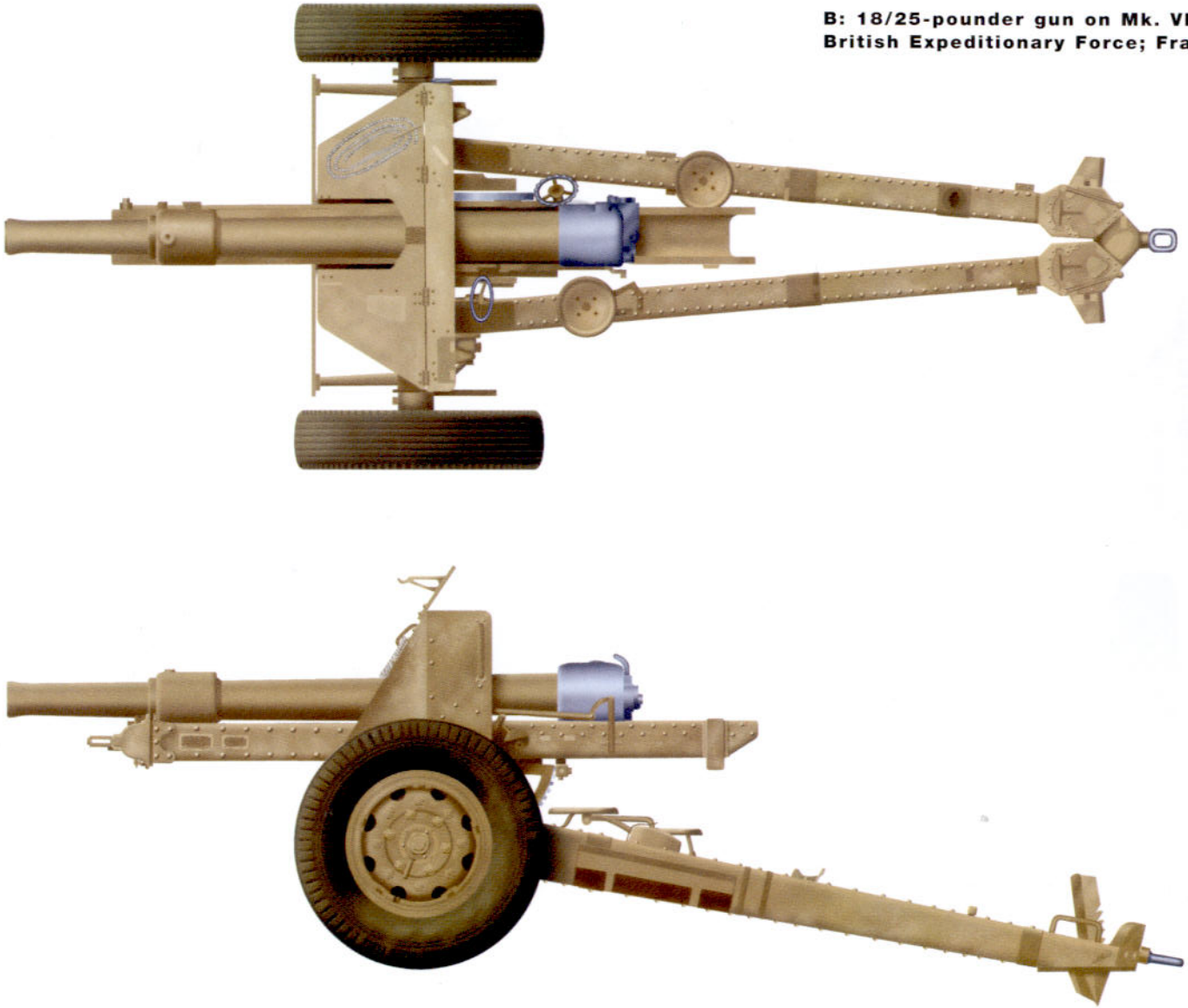
From September to December 1940, the Italians initially advanced towards Egypt, halted just inside the border and went to ground about 60 miles inland. British successes against them are legendary but the use made of small, mobile groups of all services (known as Jock columns after Major-General J. C. Campbell, VC) was to dilute the use of the 25-pounder that became so effective in the later barrages at the battle of El Alamein. In general, it was the 25-pounder Mk. II that was the main artillery support



A 25-pounder Mk. II in the Western Desert, 1941–42. Unusually, the gun has a marking on the trail, possibly denoting the troop. The barrel was also marked along the centre line at the muzzle. The explosion near the gun may be the effect of counter-battery fire. (Courtesy of RAHT)

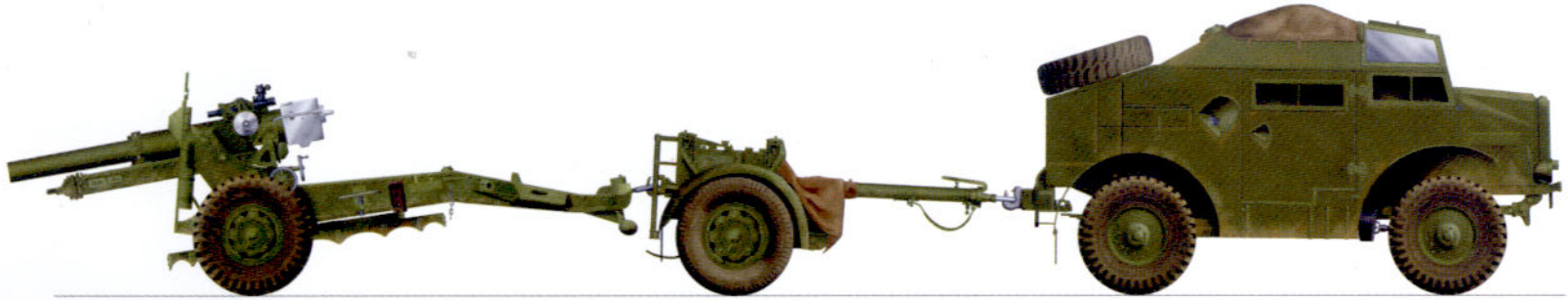
A1: 18/25-pounder gun on Mk. IVP carriage, British Expeditionary Force; France, 1940



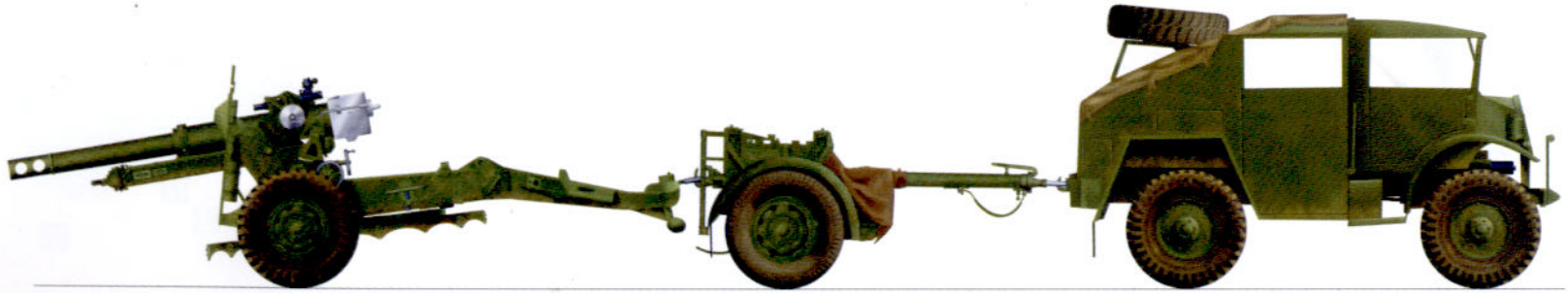


B: 18/25-pounder gun on Mk. VP carriage, British Expeditionary Force; France, 1940

C1: 25-pounder Mk. II carriage with Morris Quad



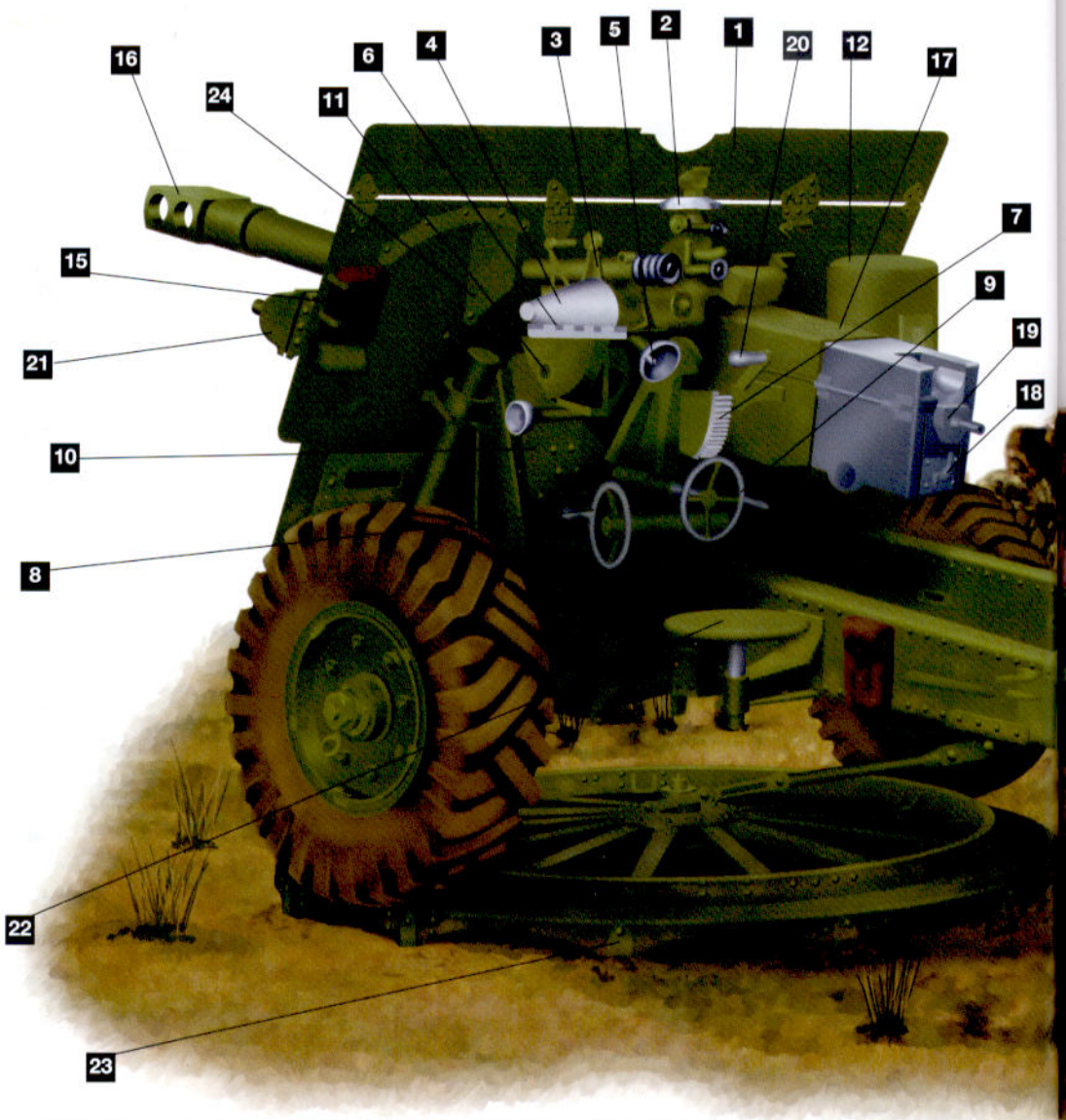
C2: 25-pounder Mk. III carriage with Chevrolet Quad



D: QF 25-POUNDER GUN MK. III ON MK
WITH NO.27 TRAILER

KEY

1 Shield
2 No.9 dial sight
3 No.41 sighting telescope
4 Range scale cone
5 Range indicator hand wheel
6 Muzzle velocity reader
7 Elevating arc
8 Traversing hand wheel
9 Elevating hand wheel
10 Saddle
11 Tangent elevation bracket
12 Dial sight case
13 Locking plate
14 No.2 platform spade box
15 Sight clinometer case
16 Muzzle brake
17 Counterweight
18 Vertical closing breech
19 Firing lock
20 Firing lever
21 Buffer/recuperator
22 Gunlayer's seat
23 Firing platform
24 Sight port cover
25 Stores tray
26 Towing hook attachment
27 Trail bumper



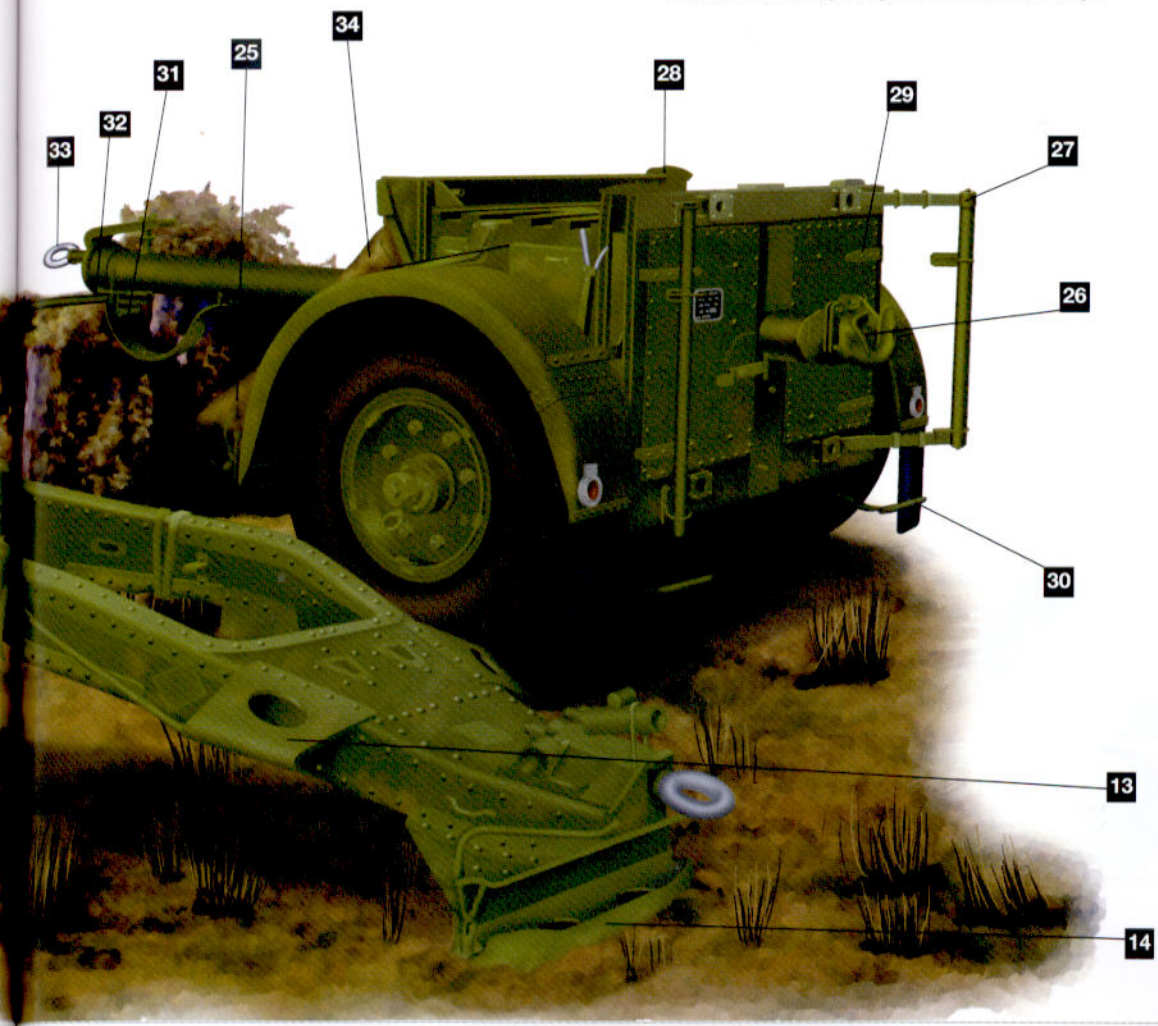
CARRIAGE

28 Firing platform catch
29 Ammunition locker door
30 Spring skid
31 Perch bumper
32 Lifting handle
33 Perch eye
34 Canvas cover

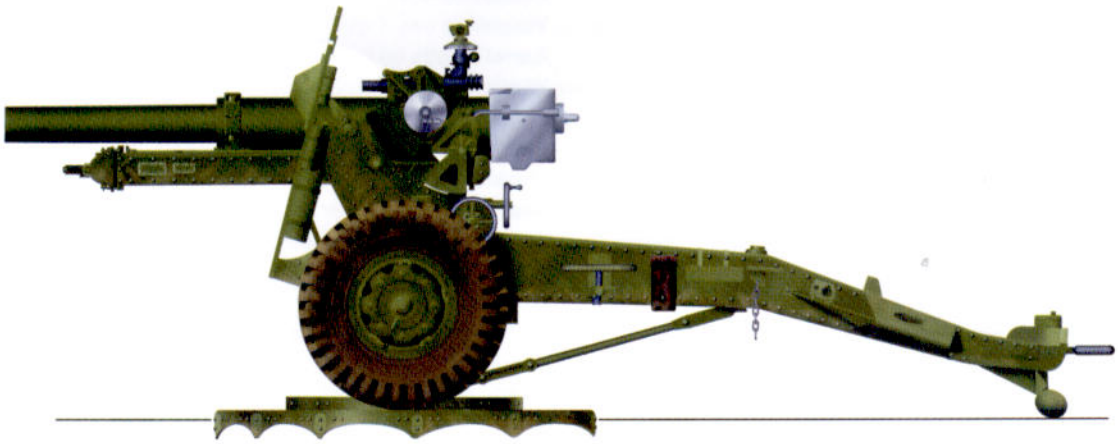
SPECIFICATION

Detachment: 6
Weight: 35 cwt, 1 qtr
Barrel length: 98 inches
Width: 7 feet
Muzzle velocity: 1,700 ft/sec
Maximum range: 13,400 yds
Maximum elevation: 40 degrees
Depression: 5 degrees
Ammunition system: separate loading multi-charge

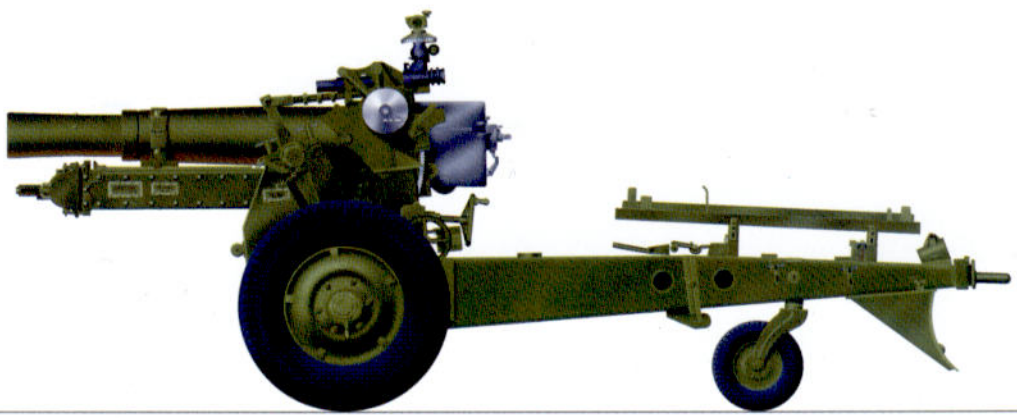
No.27 ammunition trailer (limber)
Weight (with stores and ammunition): 30 cwt 3 qtr 1 lb
Length: 10 feet 9 inches
Width: 6 feet 11 inches
Ammunition capacity: 32 rounds in 16 trays



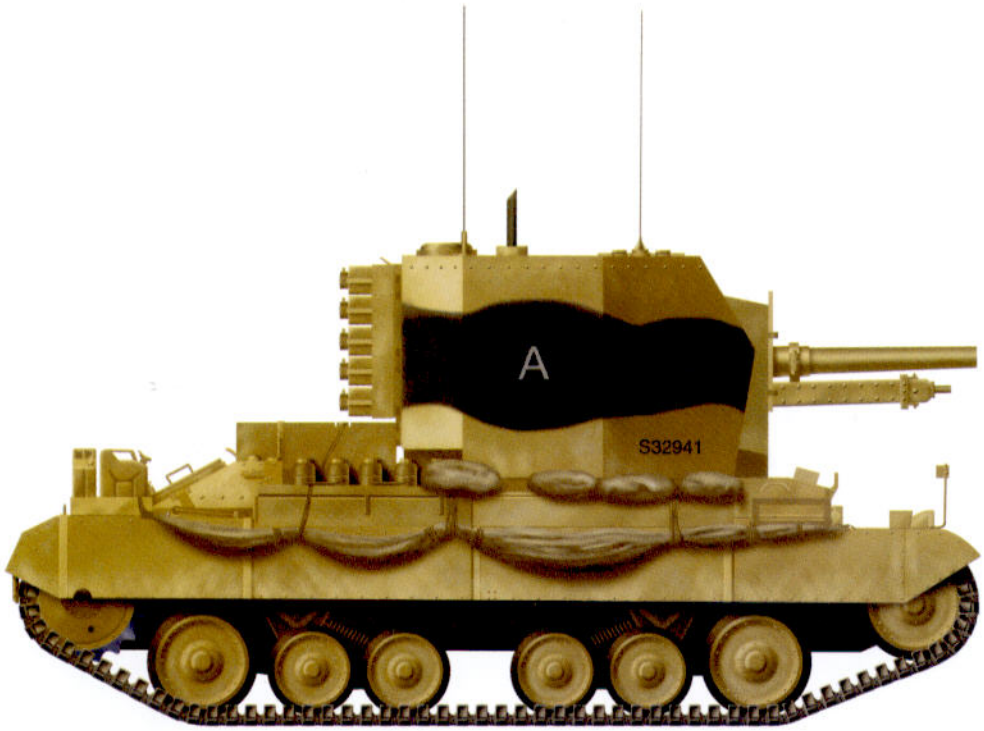
E1: 25-pounder gun on Mk. II carriage (Jury Axle)



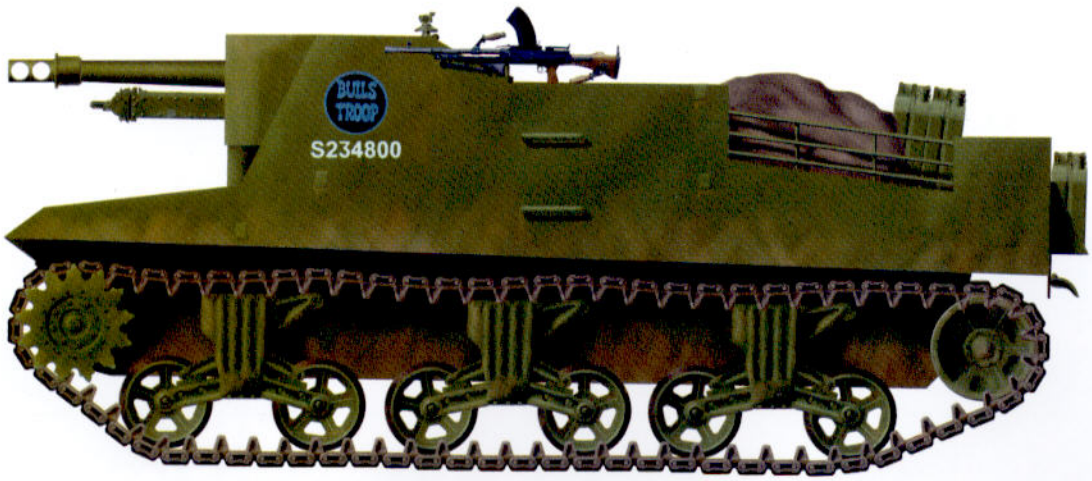
E2: Ordnance QF 25-pdr Short (Aust) Mk. I on Carriage Light (Aust) Mk. I



F1: The Bishop mounting and carrier, Valentine, 25-pounder Gun, Mk. I



F2: The Sexton self-propelled mounting



G: Mirbat, Oman, 1972; the last 25-pounder used in action

for these forces. The guns were hampered by the soft sand, the trails and platforms requiring reasonably firm ground to fire satisfactorily, and were a very long way away from their support vehicles. Conditions were often so bad that the 25-pounders had to be winched over rough ground when withdrawing. However, the startling victories of the British over the Italians hid the fact that most British weapons were not capable of dealing with heavy armour. The 25-pounder had little problem against lightly armed Italian tanks, but the arrival of Rommel's Afrika Korps changed the situation completely. Armed with the famous 88 mm Flak gun (the 25-pounder was also about 88 mm in calibre) and Panzer III and IV tanks, the war in the desert changed overnight. Only the 25-pounder gun had the manoeuvrability, range or hitting power to challenge German armour and guns, and the battles around Tobruk and further east would demonstrate the worth of this gun.

The fighting for Tobruk in April 1942 saw the direct confrontation of 25-pounders against tanks. At a range of 400 yards the guns of A/E Battery, 3rd Regiment, Royal Horse Artillery, engaged German tanks forming the defences of Tobruk. The continuous shooting set tanks on fire and allegedly blew the turret off one. The openness of desert warfare meant that guns and tanks were often pitted directly against one another. What is more, it meant that the 25-pounder was also engaged frequently against the 88 mm Flak guns and in this respect it was at a disadvantage. The 25-pounder had a range of 13,500 yards at most and a muzzle velocity of 1,700 feet per second, whilst the 88 mm had a muzzle velocity of 2,624 feet per second and a maximum range of 16,183 yards.

Much has been made of the use of armour-piercing projectiles by the 25-pounder guns during the desert battles. The projectile itself was issued early in the war, as it was available for the 18/25-pounders, but not in large numbers. In reality, the 25-pounder was used in desperation against tanks. Consider one of the first actions of A Battery (HAC) RHA on 21 January 1942 as part of Baron column operating near the wastes of Wadi el Faregh. Forty enemy tanks, mostly Panzer IIIs and Panzer IVs, attacked the column from about 4,000 yards. After a five-hour battle, it was decided to conduct a fighting withdrawal whilst being attacked by Stuka dive-bombers and the advancing armoured units. During this action, C and D troops of A Battery were firing over open sights at the enemy. Three guns were destroyed and, although two guns continued firing, reports suggest that they only did real damage by indirect fire at ranges over 600 yards. Mechanically, the soft ground was very detrimental to the guns since the platforms bent and buckled when the guns were fired continually. In a contest like this, gun crews could be picked off at will and as one commentator put it: 'the old horse artillery tactics – quick advance, quick unlimbering to action front, quick retirement (if such was ordered) – did not work, and no valour and skill could have made them work, in a terrain where 60 horsepower could not do what six horses had, over decent going, so often done.' In fact, according to reports from November 1942, indirect fire on tank formations was considered to be far more effective. If enemy tanks in numbers were seen by an observation post, a concentration of fire was brought down upon them. It was difficult to judge the effect of this fire because it was obscured by dust and heat waves. For example: 'In one case a regimental concentration fired on some

The difficulties of transport along desert roads. A gun troop attempting to negotiate a blocked desert road, and the gun in the rear has been unlimbered. Note the upper shield of the gun has been folded down for travelling. This would also be done if the dial sight needed a forward view. (IWM)

30 enemy tanks with the result, it is alleged, that 5 were set on fire, a few others were stopped and the rest withdrew.' The main conclusion was that the concentration of a regiment of guns on tank groups invariably led to withdrawal of the tanks:

'The 25-pr at anything but short ranges is not a good killer of tanks but that heavy concentrations, particularly if the fire of mediums [guns] is included are effective in disorganising enemy tank formations and upsetting their plans. Casualties to enemy tanks must depend on their dispersion ... Firing direct in its secondary role a troop of 25-pounders can knock out tanks at short ranges, but as an A/tk weapon a 25-pr is far inferior to the 6-pr.'

A high-explosive shells would normally only destroy or immobilise a tank if it hit a track or the top of the turret. There are many examples of the 25-pounder being used as a short-range weapon against tanks, but it was the ease with which the gun could be trained on a target that meant it was more suitable than other field guns for this use.

The battle of El Alamein

Of all the great artillery barrages, that preceding the battle of El Alamein was one of the great deployments of the 25-pounder gun. The opening barrage utilised at least 834 guns co-ordinated in a fire plan designed to cover engineer parties that were intended to clear a way through the barbed wire and land mines that protected the Italian and German forces from attack. The deafening roar of this massive bombardment rent the night of 23 October 1942. As with any artillery fire plan, different units were switched to different targets depending on need, and thus not all the guns were in action at the same time. Nevertheless, over one and a half million rounds were expended. For any major attack no restrictions were placed upon the amount of ammunition fired. In fact, the limitations on the guns were how quickly the ammunition could be brought up to the guns. The average expenditure of rounds per gun was 102 per day over 12 days.

One of the great changes that occurred in late 1941 was the reorganisation of the Royal Artillery. This led to a different mode of handling massed guns because signalling centres and the central control of guns had been previously divided up. The Royal Artillery was able to make good these changes at El Alamein because they were in control of the whole barrage. Effectively there was a separate chain of command for the guns that followed fire plans made by artillery officers. Large formations, such as the corps or division, had an artillery advisor to direct the guns. This type of massed gun control was particularly prevalent in the Soviet Army. From 1942 onwards, the Royal Artillery were increasingly required to carry out large-formation firing. Guns could be ordered to fire by a series of specific orders that indicated the size of the firing group. A 'Mike' target order gave the fire of an artillery regiment (24 guns), an 'Uncle' target gave the fire of a division (72 guns) and a 'Victor' target concentrated the fire of a corps (150–250 guns). The attack of the 2nd New Zealand Division on the night of 1/2 November was accompanied by a barrage of 25-pounder guns that was able to give a concentration of one gun per 21 yards of barrage frontage. The average rate of fire was 2 rounds per gun per minute.

For the man on the ground, El Alamein was a time of great activity. Gunners were involved in firing at night, constantly firing and being resupplied by trucks from the Canal Zone area. A gunner's lot was a strange experience of getting orders, following the drill, but never being able to see the target. El Alamein was one of the great gunner battles of the Second World War, and an interesting report made directly after the battle by Brigadier S. C. Kirkman, RA, of the Eighth Army written on 24 November 1942, describes the different aspects of using the 25-pounder in such large numbers.

During the battle a proportion of the field artillery was given counter-battery fire tasks, that is they were tasked with seeking out enemy guns and destroying them. At El Alamein the guns were concentrated on selected shoots to destroy known enemy gun positions just ahead of the main barrage. Guns were located by aerial photograph or by flash spotting, a technique involving viewing a position from two other points at a known distance from each other and then calculating the angle to the target. This was carried out from observation towers. Brigadier Kirkman makes an interesting observation here: 'There is no doubt

The 25-pounder Mk. II in the desert, the barrel of which has the early profile. The Morris tractor at the back is camouflaged with foliage to obscure its shape from air attack. (IWM)

that even before the battle, our artillery had achieved a moral superiority over the enemy's artillery, partly due, no doubt, to the enemy's difficulties of ammunition supply, though he had a practically unlimited supply of 25-pounder ammunition and a number of guns from which to fire it.'

D-Day and the Normandy Battles in 1944

'Your supergun – the automatic 25-pounder.' (German prisoner at the Village of Ifs, Normandy, 1944)

From June 1944 onwards, the 25-pounder, both towed and self-propelled, was in evidence in larger numbers. The 25-pounder Sexton was issued to Royal Horse Artillery units immediately after D-Day so that they could be integrated with the armoured divisions crossing France at that time. It has been estimated that 20 per cent of all army personnel during D-Day and after were allocated to artillery units. This leaves us with a bewildering number of British and Canadian units armed with either towed or self-propelled 25-pounder field guns.

It is interesting that immediately after the landings British units were armed with the 25-pounder Sexton self-propelled gun to replace the Priest 105 mm SPG. This is thought to have been because the Americans were short of 105 mm ammunition and therefore it could be used by them in Normandy. The Priest self-propelled guns were eventually converted into Kangaroo armoured personnel carriers. One might think that the smaller calibre projectile was less effective than the 105 mm but this is certainly not the case. The reason for this can be found not in the size of the shell but in the ability of the British and Canadian gunners to concentrate fire. Normally there were 24 guns in a field regiment and 72 guns or three regiments accompanied a division. The forward observation officers (FOOs) were normally the officers of the battery who went up to the front line with the infantry and directed fire from the guns by radio through a command post at the guns. They were normally mounted in universal carriers adapted to the observation post role and equipped with a remote microphone set that allowed them to leave a vehicle and reel out the cable so that they were not necessarily tied to the vehicle.

Artillery officers were present at various levels of command and could, if needed, call down fire from the whole regiment or even the whole divisional artillery complement if required. Because all the guns were surveyed into a mapped grid system their precise position

Loading the 25-pounder in Normandy. The gun shield has been marked out in squares near the dial sight and notes are written in them. These may be for pre-registered targets. (Courtesy of RAHT)

was known in relation to other guns and their targets. The key to being able to concentrate large groups of 25-pounders on to a target was the speed with which they could be surveyed into the grid. This was carried out by survey troops. The fire of 24 or 72 guns on a single target gave the Germans the impression that the 25-pounder was a 'supergun' that could be loaded automatically. In fact, one Canadian officer with the 4th Field Regiment, Royal Canadian Artillery stated that when the Germans were told that the gun had separate loading-ammunition, i.e. that it had to have the projectile and cartridge loaded separately, they did not believe what they were being told: 'they merely smirked in disbelief, nodding in a knowing fashion, as though to say of course we know you have to lie for security reasons.'

The 25-pounder Mk. II in use on the Italian front in 1943. (Courtesy RAHT)

As an example of how these massed guns were used we should look towards the actions in the Normandy breakout during 1944. Operations Goodwood, Atlantic and Totalize were examples of artillery barrages that were able to break up concentrations of German infantry and armour, without which allied forces would have been severely mauled. In the words of Lieutenant-General Sir Brian Horrocks, 'I used to sit on the top of [Mont Picon] with my chief gunner Stuart Rawlins beside me, with 300 guns at the end of our wireless mast. If any units were held up, we were able to concentrate in a few minutes the fire of these guns on the enemy.'

How did this actually affect the enemy and how effective was it? We must return to the actions of the Canadian artillery to see how they fared between 20 July and 27 July. The 2nd Canadian Division, with 72 25-pounders, were supplied 193,000 rounds, on average firing

A 25-pounder, probably a Mk. III with a Solothorn muzzle brake, just after the D-Day landings. (IWM)

300 rounds per gun per day. The 4th Field Regiment diary stated that on Verrieres Ridge, 'Continuous firing all day breaking up counterattacks. All counterattacks were successfully broken up – almost entirely due to artillery support. At 1600 hours had fired over 16,000 rounds since 1600 hours 24th.' Clearly artillery fire alone was capable of breaking up an attack by the Germans in Normandy.

Post-war Service

The 25-pounder in action in Korea

The war in Korea between 1950 and 1953 saw the 25-pounder in action again. Three field regiments were sent out to Korea: 45 Field Regiment between November 1950 and November 1951, 14 Field Regiment between November 1951 and December 1952 and 20 Field Regiment between December 1952 and December 1953. Of these, the 25-pounders of 45 Field Regiment are known for their action in support of the Gloucester Regiment at the Battle of the Imjin River.

For much of the war the lines remained static, and pre-registered areas could be targeted. The battery commander supporting the Gloucester's defence, Guy Ward, was able to call down fire on any number of targets because of the view across the plain. Normal procedure was to use the Air Observation Post to spot for the guns. This could be an Auster Mk. VII piloted by a gunner officer who was able to spot targets and then correct gunfire on to them. The 25-pounder was the heaviest British gun present in the Korean War and as such it was highly successful in breaking up Chinese human-wave attacks. However, the larger American 155 mm gun was needed for larger bombardments and this may have signalled the end for the smaller calibre gun.

A 25-pounder of 42nd Field Regiment in a post-war role, possibly in the Middle East. The gun trail has been dug into a pit and hence the piece has a much higher elevation than on normal ground. The No.1 has a short rammer in his hand, intended to assist the shell into the chamber. (Courtesy of RAHT)

The 25-pounder in the Malaysian Emergency and Indonesia

The assistance given to Malaya between 1948 and 1960 gave the 25-pounder a new lease of life during the 1950s and '60s. The Communist rebel-led units were not armed with many heavy weapons, and consequently they used the thick jungle as a cover for their hit-and-run operations. The artillery was used to give support to Gurkha divisions that were sent on long-range patrols to seek them out. The guns were not normally used in permanent positions and gunners were expected to fire at any time. They slept in the backs of lorries; interestingly the prime mover during this campaign was the American 2.5-ton GMC truck from the Australian army. Guns would be operated by shifts, sometimes of three men at a time.

The tactical purposes of the gun were often to act as an area-denial weapon to the communists. The gun might be positioned in a tea plantation and ranged down into the jungle. The guns would be randomly fired into the jungle so that the communists got the idea that nowhere was safe for them to go. In the words of one veteran of the campaign, Jack Langley of D troop, 95 Field Battery, attached to the 17th Gurkha Division:

'Communist terrorists would ambush police patrols, steal their weapons and then run into the jungle. The idea was that our troop or battery would be deployed to put shells into a known area, a track in the jungle, so that the Gurkhas could come up behind and catch them ... We would be firing so much that the paint on the gun would blacken and blister, you could almost see the gun barrels in the night glowing red they were so hot.'

THE 25-POUNDER IN OTHER ARMIES

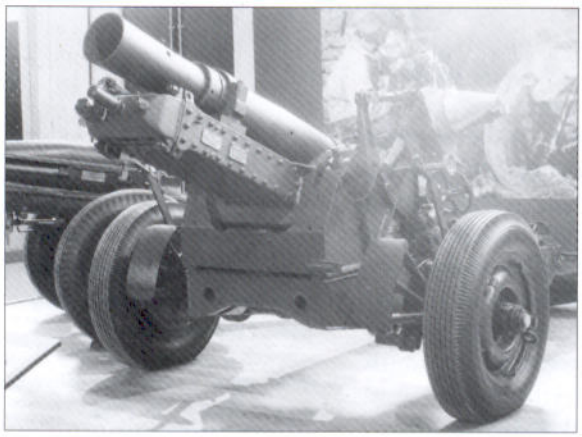
The provision of the 25-pounder gun to other armies has been quite widespread around the world. Both Indian and Pakistani armies have had 25-pounders since the Second World War. Large numbers of these guns were used by both sides during the Indo-Pakistan conflict of 1970–71. In fact, India was a major user of the 25-pounder until the later 1970s. After partition in 1948, both India and Pakistan were allotted field regiments equipped with the 25-pounder. Immediately after the Second World War, 1 and 2 Indian Army Field Regiments were equipped with Sexton self-propelled guns. In 1948 there was action in Jammu and Kashmir and, as most of the field units were armed with the 25-pounder, these were inevitably used. In November 1962, border incursions by the Chinese led to an undeclared war against India in which several field batteries were deployed in the operations around Kameng where the border meets Bhutan and Tibet. In one attack, 25-pounders of 97 Field Battery fired over 300 rounds against the Chinese which, it is claimed, broke up their infantry attack. Generally, all of these armies deployed the 25-pounder Mks. II and III on Mks. II and III carriages with few changes, although South Africa modified and manufactured them as the 90 mm gun. Many African nations, including Nigeria and Mozambique, still have them in service.

A interesting view of an Indian 25-pounder showing the locally applied camouflage colour scheme, probably green and khaki. Other camouflage schemes were applied in the field, especially in the Western Desert campaigns, as defence against air attack. (Courtesy RAHT)

VARIANTS

Ordnance QF 25-pounder Short (Aust) Mk. I on Carriage Light (Aust) Mks. I and II

All guns go through modifications when used in the field. Problems are encountered then overcome by adapting new parts in a series of modifications, which allows the gun to perform better over its service life. However, some become so modified that the gun is barely recognisable as the original. A good example of this process is the Ordnance QF 25-pdr Short (Aust) Mk. I on Carriage Light (Aust) Mks. I and II. In 1942, Australian forces were fighting the Japanese in New Guinea and the heaviest support they could muster was the 3-inch mortar. The terrain dictated what kind of gun could be used, and the Australians were looking for a gun that could be broken down into several loads, was air transportable and could be packed into a jeep or moved by mule. The Australian Director of Artillery, Brigadier J. W. A. O'Brian suggested that the 25-pounder could be redesigned for just such a role. Charles Ruwolt Pty Ltd produced prototypes and field trials were held on 10 December 1942. It was not until August 1943 that guns began to be supplied to the AIF Divisions. In New Guinea they were used in support of the 7th and 9th Infantry Divisions by 2/4 and 2/12 Field Regiments respectively. The gun gave good service and was robust enough to survive life in the jungle even though many modifications were needed, one of the initial problems being that it was considered a high-risk activity to fire the gun with a supercharge.

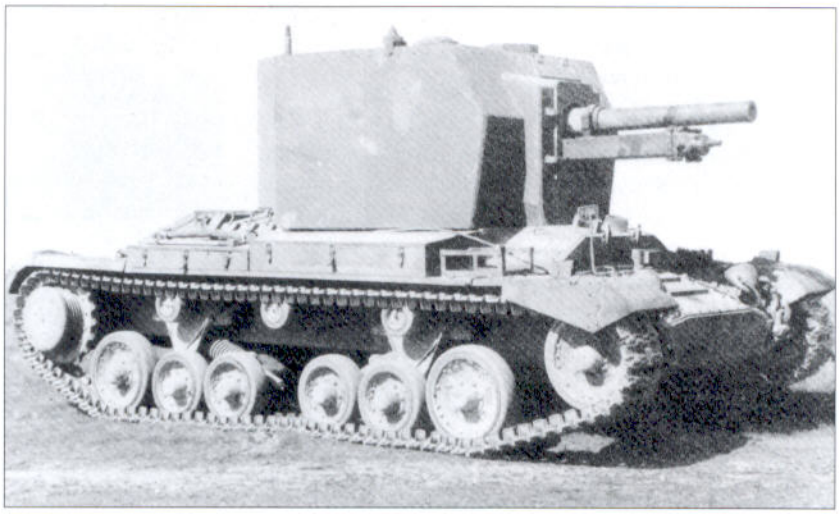


The Australian 25-pounder gun. The two curved plates between the wheels and carriage are axle stands used to relieve the strain of firing from the wheels. (Courtesy of RAHT)

Australians affectionately knew the gun as the 'snout' and one can see why when looking at it. The barrel was four feet long and the whole gun weighed one and a quarter tons. The short 25-pounder could be broken down into 13 or 14 loads (depending on whose handbook one consults), which were then parachuted out of a C-47 transport plane. The loads had to be packed in separate cartons and dropped individually. The carriage was a radical deviation from the British gun in that it essentially consisted of a new cradle, trail and axles. The trail was made of box-section steel and hinged at the middle of the section behind the breech. The gun had a small jockey wheel at the rear, which allowed it to be manoeuvred easily in position; it was raised above the trail for transport purposes. It was also equipped with two stabilisers, which were intended to reduce stress on the wheels. However, an interesting report from 23 Australian Field Battery requested that the stabilisers be removed because they caused problems when reversing and running up. The stabilisers were removed and the guns were used on their wheels throughout New Guinea.

An excellent picture depicting the problems of transporting field guns during the Burma campaigns. It shows a gun of 27 Field Regiment travelling on the Kalapanzin River, Burma. This gun appears to be a Mk. II gun on a Mk. I carriage judging by the position of the air pump bracket. The shield has been removed and the jeep appears to be the towing vehicle. (Courtesy of RAHT)

A battery of Australian 25-pounders normally consisted of battery headquarters in four jeeps and a light trailer. There were two troops each of seven jeeps, one D6 tractor and a 1-ton trailer. The gun troop had four guns each assigned to a jeep with one gun stowed in it and 24 rounds of ammunition. The D6 tractor carried 88 rounds of HE ammunition.



Front view of the Bishop self-propelled gun. (Courtesy of RAHT)

The Pheasant and other Designs

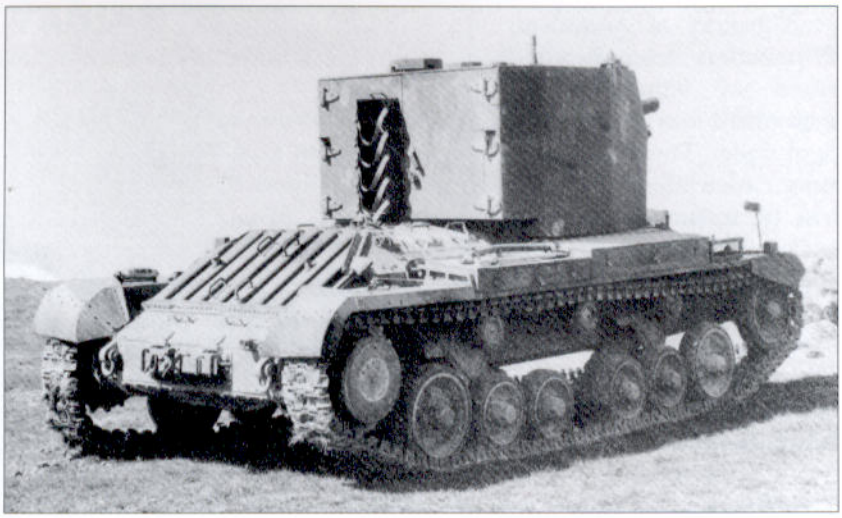
Although it is not strictly a 25-pounder, it is worth mentioning that the Mk. I carriage was used for an experiment with the 17-pounder anti-tank gun barrel. The constant technological battle between Allied and German weapon designers to come up with bigger and more heavily armoured tanks and the guns to penetrate them led the British to seek a much more powerful gun than the 6-pounder. The 17-pounder gun barrel was ready for service on 1 May 1942, but worries about the appearance of the German Tiger tank in North Africa in 1942 led the authorities to test the gun on a 25-pounder carriage. This combination became known as the 17-pdr Mk. I on Carriage Mk. 2, colloquially known as the 'pheasant', and was sent to Africa where it gave good service, certainly in the Tunisian campaign. The 25-pounder carriage was not designed to take the stresses generated by a gun that had a muzzle velocity of 2,900 feet per second but it was said to be able to cope with the firing of the gun reasonably well.

As has been previously mentioned, the development of a new gun led to a great deal of experimentation and this led to a number of interesting alterations. One of the more intriguing was the 25-pounder Mobile Armoured Revolving Cupola designed by the Free French Officer M. Ribaud. This consisted of a steel turret on a four-wheeled trailer and could be traversed in any direction. As with the 88 mm FlaK gun it was intended that it could be fired from wheels but normally it would be mounted on two adjustable rear legs. As with many similar ideas, it proved to be impracticable and the idea was dropped in 1944.

THE 25-POUNDER SELF-PROPELLED VERSIONS

The 25-pounder Mk. I on Carrier, Valentine, 25-pdr, Mk. I (Bishop)

The two main developments in terms of self-propelled equipment were the Bishop and the Sexton. In June 1941, the war of movement in the



An early view of the Carrier Valentine 25-Pdr Gun Mk. I viewed from the right rear with doors closed. This picture may have been taken on Salisbury Plain. (Author's photograph)

Western Desert led to a requirement for a self-propelled version of the 25-pounder gun. In June 1941, the Birmingham Railway Carriage and Wagon Co. Ltd were asked to design such a gun based on the Valentine tank chassis. This they did and produced the Bishop or, to quote its military title, 25-pounder Mk. I on Carrier, Valentine, 25-pdr, Mk. I. It was the first British attempt at designing a self-propelled gun and was not particularly successful, being slow at 7 mph, and the limited amount of elevation severely restricted the range to 6,400 yards.

The gun was normally crewed by four men: gunner, loader, driver and commander. It could be supplied with a Bren gun for AA defence but this is not normally shown in photographic evidence. The vehicle was powered by an AEC diesel engine and had an armour thickness of 60 mm at maximum and 8 mm minimum. This gun was a stopgap measure and was very distinctive as it had a large square superstructure on the chassis containing the gun. The gun was capable of 8 degrees of traverse, 15 degrees of elevation and 5 of depression. The Bishop could carry 32 rounds of ammunition and, in order to improve ammunition

A Bishop self-propelled gun in action in Tunisia in 1943. The rear of the turret is open and the gun is loaded from the rear deck. This operation must have been awkward over a long period of time. The Bishop was a typical example of a tank conversion to SP gun. (Courtesy of RAHT)

Sexton self-propelled gun of G Battery, A Troop, RHA (HAC), of whom Sergeant Saunders was the No.1. The gun was photographed in Belgium on its way to Antwerp in 1945. The number 76 is the arm of service marking for artillery. (Author's photograph)

supply, a No.27 ammunition trailer was towed along with the vehicle.

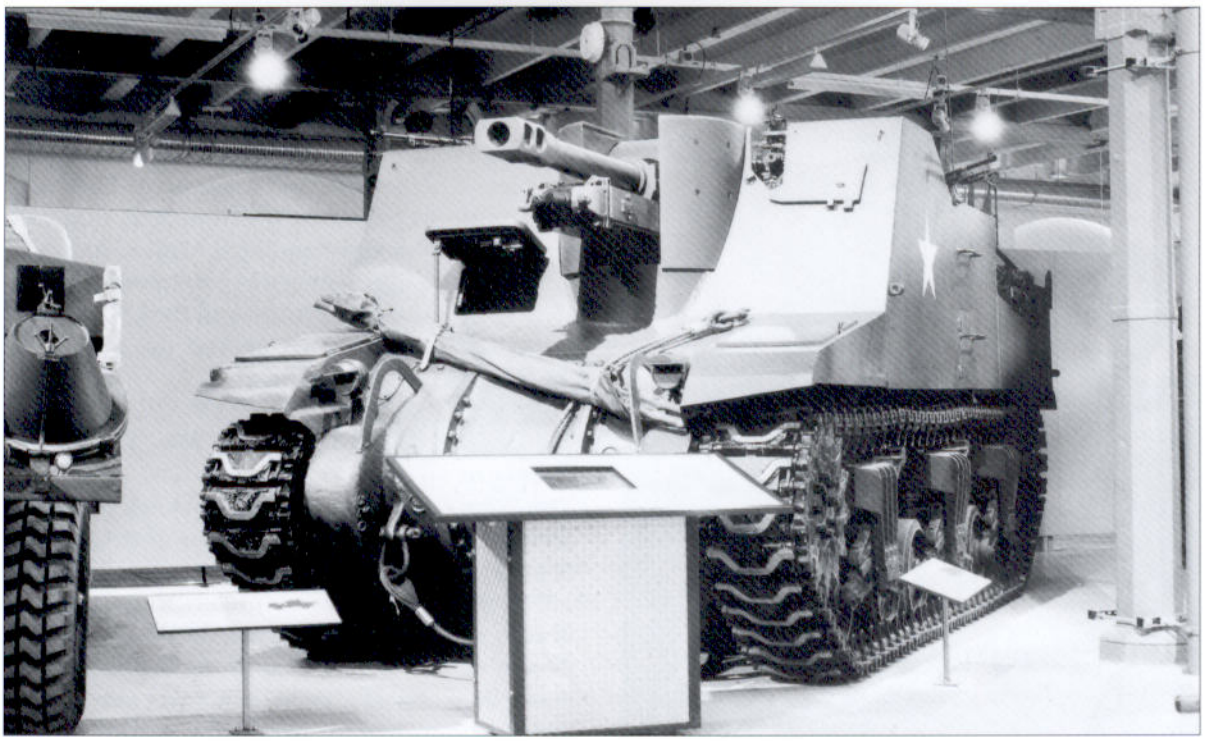
The guns were not ready for service until July 1942 and about 100 were eventually delivered. Although a further 50 were ordered in 1942, it is not clear whether they were delivered. They were used in the Western Desert and in Sicily and Italy, serving with the Eight and First Armies. Although of limited use, the Bishop was employed in Italy in 1943 and served its purpose until the US designed Priest 105 mm gun carriage and the Sexton 25-pounder SPG came into use.

Mounting, SP, 25-pdr, C, Mk. I (Sexton)

The American Priest was first issued to British armoured formations but it was the Canadian Army Engineering Design Branch that came up with a design that was eventually to become the Sexton self-propelled gun or the Mounting, SP, 25-pdr, C, Mk. I. The Sexton owed much to the Priest in terms of design and was really a Ram Kangaroo armoured personnel carrier with a 25-pounder mounted upon it in an open-topped superstructure with the driver on the right-hand side of the vehicle. The saddle and pintle of the gun had to be redesigned so that the gun could be traversed quickly. In addition the recoil was limited to 20 inches to enable the gun to elevate to 40 degrees.

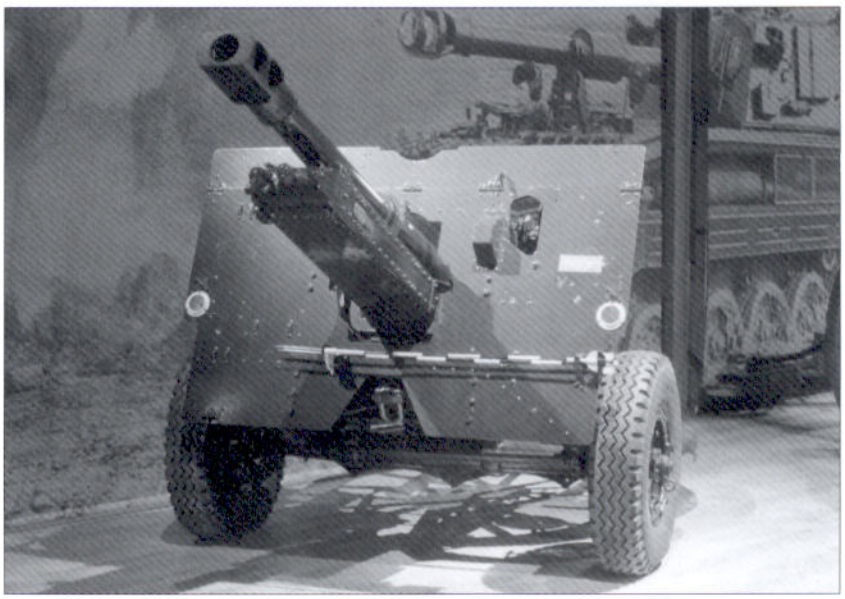
In 1943, this altered gun was shipped to Britain for trials and in 1943, the Montreal Locomotive Works was producing the gun. The Sexton went through many of the same changes as the Ram tanks and carriers, in that the early version had a riveted chassis and bogies, which were altered in 1944 to cast one-piece noses and M4 bogies with trailing roller returns. Later versions also had a towing hook for the ammunition trailer, and an auxiliary generator. The Sexton was also manufactured in a command post version known as the Sexton GPO or Gun Position Officer. This had the gun removed and an additional No.19 radio set added to allow the vehicle to control battery fire. This included the use of map tables and extra equipment. The Continental R-975 400–480 horsepower aero engine was the main power unit for a large vehicle weighing 25 tons with a relatively light gun.

The Sexton fighting compartment was so designed so that the driver sat below the gun on the right-hand side. However, as anybody who has attempted to drive one will know, the space is extremely cramped and if the clutch was opened the driver needed an extra joint in his leg to be able to operate it. When firing, the vehicle stopped and was loaded through a hatch above the tracks on the left-hand side of the vehicle. The floor-level space was constructed so that the floor plates could be removed and projectiles were held in lockers underneath. There was provision for 87 high-explosive or smoke projectiles and 18 armour-



The Sexton self-propelled gun or Mounting, SP 25-pdr, C, Mk. I. The armoured traversing shield can be clearly seen either side of the gun barrel. There is a further shield above the breech of the gun. (Courtesy of RAHT)

piercing projectiles. For defence in an emergency, there were two Bren guns that could be mounted on a removable pedestal clamp, and occasionally Browning machine guns were fitted. There were normally six crewmembers: the commander, driver, loader, gunner, gun layer and radio operator. The Sexton directly replaced the Priest in June 1944, just after the Normandy landing, freeing up supplies of 105 mm ammunition to the American Army. In all, 2,150 had been built by 1945 and the British Army used them into the 1950s.



The Mirbat 25-pounder, the last gun used in action by British forces. The gun has been repainted but bullet holes are still visible in the shield. The Sultan of Oman purchased these guns from Britain to give extra firepower to his army when combating Adoo forces. (Courtesy of RAHT)

GLOSSARY

Artillery board – A board used in a command post to calculate range and bearing to target.
Axletree – The assembly that takes the weight of the equipment and attaches to the wheels.
Breech loading (BL) – Usually denotes a gun that is loaded with a separate propellant bag behind the projectile.
Buffer – The part of a gun carriage that controls recoil.
Box trail – A gun trail that is designed in the shape of a hollow box.
Charge – The explosive required to propel a shell to a target.
Clinometer – An instrument used to measure the angle of elevation of a gun, in degrees, which normally acted like a spirit level.
Cradle – The part of the gun within which the gun barrel recoils.
Dial sight – A 360-degree sight used for indirect fire.
Laying – The aiming of the gun.
Quick firing (QF) – Usually denotes a gun that has a fixed cartridge case.
Recuperator – Normally, a device that returns the gun barrel to its original position after firing.
Run-out – The position of a gun barrel before firing or after recoil. A gun barrel is said to be run-out when it has been fired and laid to rest.
Sight clinometer – An instrument that measures the angle of sight.
Trail – The lower rear section of a gun carriage touching the ground.
Tangent Elevation – The angle between the line sight and the elevation of the gun.

COLOUR PLATE COMMENTARY

A: 18/25-POUNDER GUN ON MK. IVP CARRIAGE, BRITISH EXPEDITIONARY FORCE; FRANCE, 1940

This is typical of the guns that were sent with the British Expeditionary Force to France in 1940. Many of these guns were provided just before the units left for combat and were subsequently lost. Most guns had no markings and those with the BEF were painted a light stone colour. The instrument above the hand wheel is a range quadrant, which was used to set elevation and variations such as muzzle velocity. It acted in the same way as the range drum on the later Mk. II guns. The Mk. IV carriage is distinctive with its box trail appearance.

B: 18/25-POUNDER GUN ON MK. VP CARRIAGE, BRITISH EXPEDITIONARY FORCE; FRANCE, 1940

Only a few 25-pounder Mk. Is were sent to France and very few returned home to service in Britain, most having been destroyed in France. This gun is painted in the light stone colour used by the British Expeditionary Force at the beginning of the war.

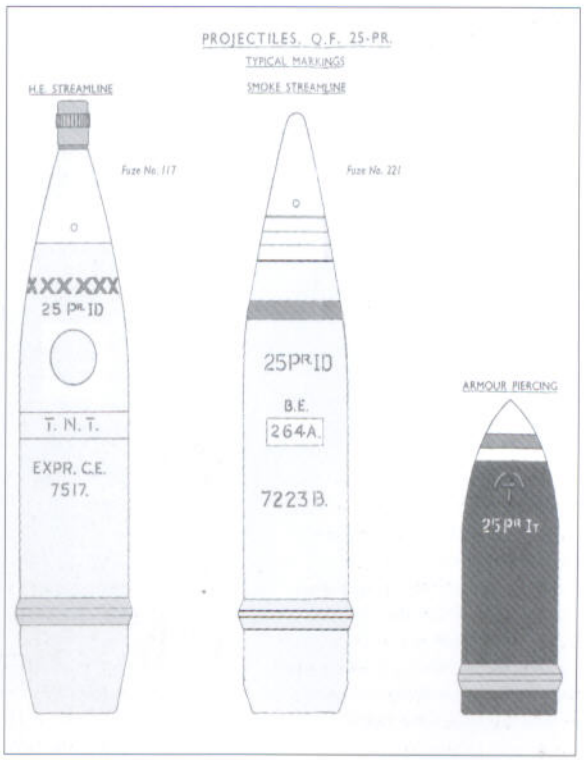
C1: 25-POUNDER MK. II CARRIAGE WITH MORRIS QUAD

The Morris Field Artillery Tractor was the main British vehicle used to tow the 25-pounder trailer and gun. This version is a Morris C8 Mark III. It was produced from 1942 until 1944 when a later body mark was introduced that had additional stowage at the rear.

C2: 25-POUNDER MK. III CARRIAGE WITH CHEVROLET QUAD

Canada produced many military vehicles for use by Commonwealth forces; this vehicle is the CG-T CMP Field Artillery Tractor. The letters CMP stood for Canadian Military

The three main types of artillery projectile from left to right are: high explosive, smoke and armour piercing. The high explosive projectile was equipped with the No.117 fuse. The T on the body of the armour piercing projectile indicated that it had a tracer element.



Pattern. The Chevrolet Quad was a Canadian-made Field Artillery Tractor and was considered to be superior to the Morris tractor, which was underpowered. The 25-pounder barrel has a muzzle brake added, which was a 1942 addition intended to stabilise the gun when using supercharge with armour-piercing shot. In all, over 20,000 of these vehicles were manufactured.

D: QF 25-POUNDER GUN MK. III ON MK. I CARRIAGE WITH NO.27 TRAILER

The 25-pounder Mk. II ordnance (barrel and breech assembly) on the Mk. I carriage with the No.27 trailer beside it. This gun is shown in position mounted upon the No.22 firing platform and with the trail spade cover in place to reduce any hindrance when the gun is traversed. The gun is fitted with a muzzle brake, which helped reduce recoil by deflecting the blast of the propellant gases leaving the barrel. Various tools and appliances were held on the gun carriage such as the dial sight case to the right of the shield.

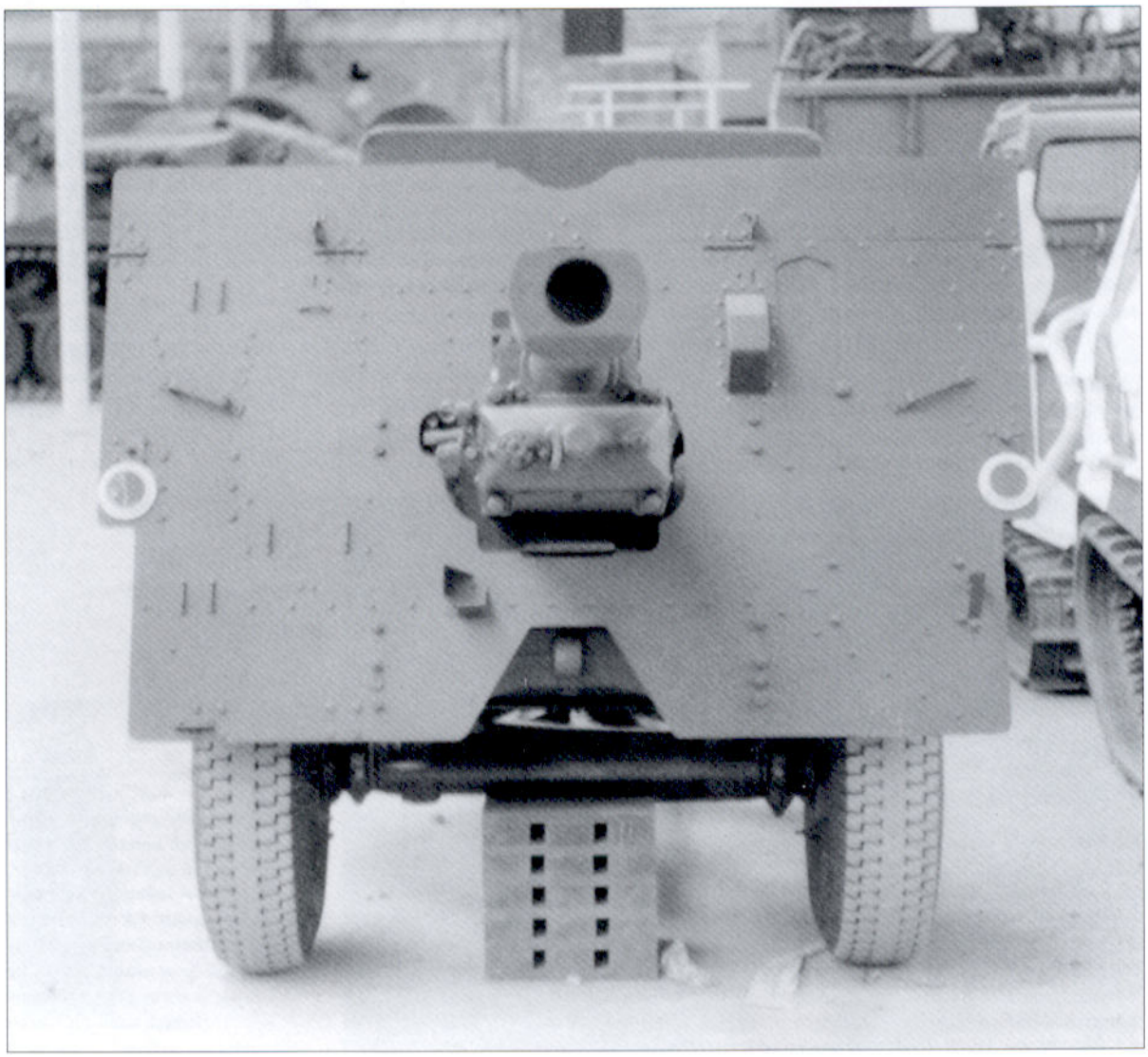
E1: 25-POUNDER GUN ON MK. II CARRIAGE (JURY AXLE)

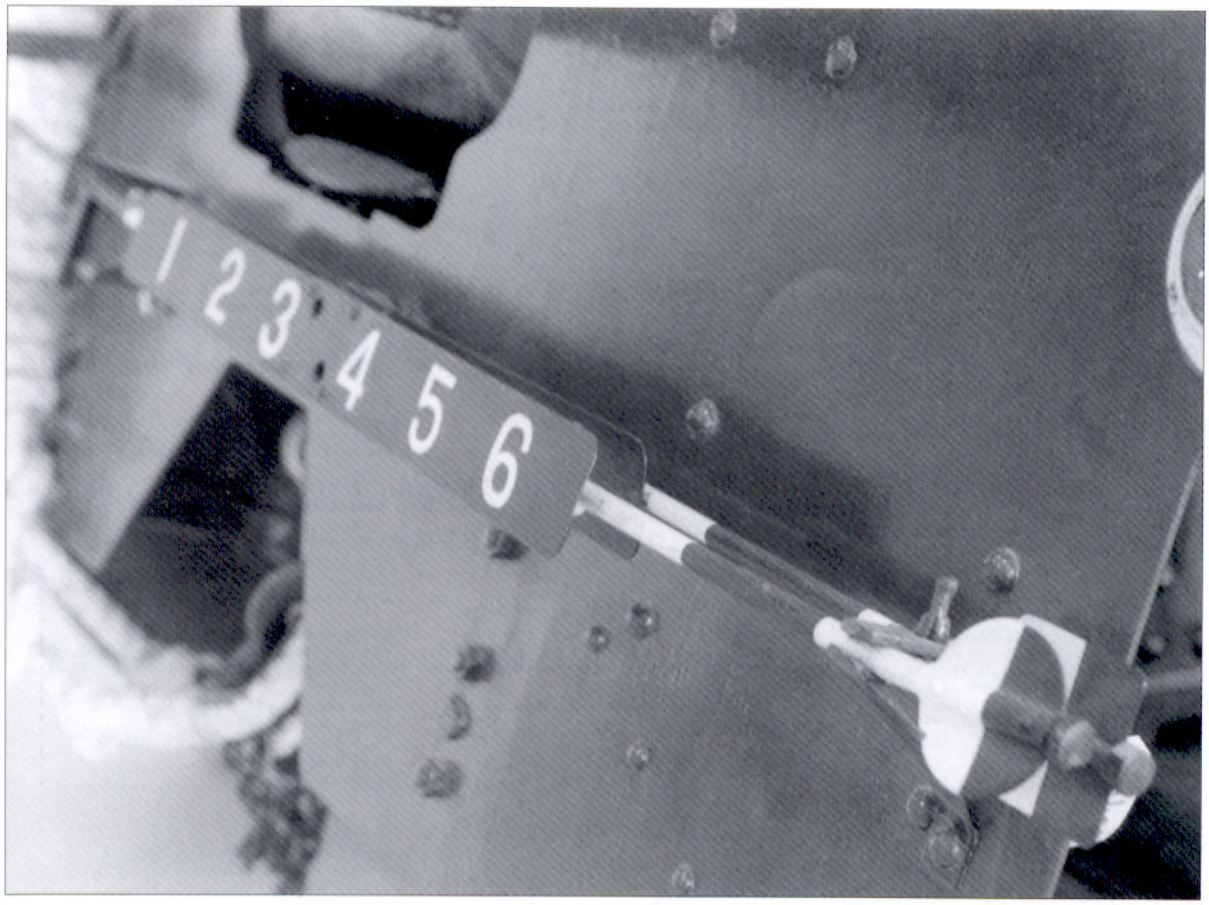
The narrower carriage, called the Mk. II, was intended to be used in conjunction with a Willys Jeep as a towing vehicle. This gun was fitted with the smaller No.22 platform and can be seen here with the main plate cut so that drag ropes can be used. The trail eye can be slotted into two positions, one for travelling and one for firing, the former allowing the spade greater clearance from the ground in the travelling position. A fuse setting plate is fitted to the left rubbing plate guard bar.

E2: ORDNANCE QF 25-PDR SHORT (AUST) MK. I ON CARRIAGE LIGHT (AUST) MK. I

The 'snout' as it appeared in 1943 during the New Guinea campaigns. Mainly dropped by air the gun could be towed by

A 25-pounder Mk. III carriage. Similar to the Mk. I but with fittings and smaller platform of the Mk. II carriage. (Author's photograph courtesy of RAHT)





Aiming posts mounted on the front of the gun. The aiming posts were used to lay the gun for line (bearing). These were the No.1 type for the field gun. Normally, the head would be of the same shape on each gun so that each gun could be differentiated by the shape of the head. This was to avoid confusion when more than one gun in a battery was being laid. (Courtesy of RAHT)

a jeep but the jockey wheel at the back must have been somewhat difficult to control. The first reports of actions against the Japanese at Lae in New Guinea in 1943 stated that in counter-battery actions against Japanese guns the 'baby' 25-pounder was far superior and on some occasions fired point blank at Japanese guns on exposed hilltop positions.

F1: THE BISHOP MOUNTING AND CARRIER, VALENTINE, 25-POUNDER GUN, MK. I

This Bishop is depicted during the Western Desert battles with the sand and black camouflage scheme that was typical of the period 1941–42. The vehicle has an 'A' on its turret, which may be the troop letter signifying that this gun belonged to A troop. The rear doors are open because of the intense heat. It is covered in sandbags and many of the accoutrements of war that were hung around the outside of the gun, internal space being very limited.

F2: THE SEXTON SELF-PROPELLED MOUNTING

Depicted is a Sexton of the Royal Horse Artillery in Palestine in 1947. Sextons were normally issued to Royal Horse Artillery units to keep pace with armoured formations. This particular gun is part of I Battery (Bull's Troop), 2nd Regiment RHA. The Sexton was armed with two Bren guns for self-protection and these could be mounted upon removable clamps as required.

G: MIRBAT, OMAN, 1972; THE LAST 25-POUNDER USED IN ACTION

The last 25-pounder used in action was actually dated 1943. During the undeclared war in Oman in 1972, SAS troopers from the British Army Training Team and members of the Omani armed forces in Mirbat came under attack from Adoo tribesmen of the People's Front for the Liberation of the Occupied Arabian Gulf. Troopers Labalaba and Takavesi fired the 25-pounder at point blank range at the attacking guerrillas infiltrating the town. Labalaba was wounded in the chin and then mortally wounded. The gun was fired at personnel targets at very short range and it was not immediately clear how effective it was in destroying attacking troops. Assistance came from two other members of the SAS team, Captain Mike Keally and Trooper Tobin, who were also present at the scene. Tobin was also wounded, and after the day's events Captain Kealy was awarded the Distinguished Service Order.

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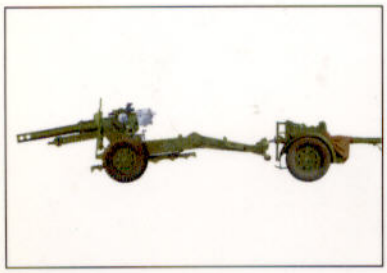

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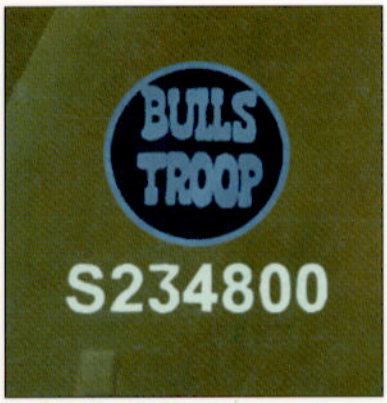

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